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ORIGINAL ARTICLES.

X-RAY IN MEDICINE.[1]

BY FRANCIS H. WILLIAMS, M.D.,
OF BOSTON.

THE X-rays as a means of studying anatomy, physiology, and pathology in the living body have many sides, but we, as practitioners, are chiefly concerned with what may directly promote the welfare of our patients. From our point of view, then, this new means may be considered simply as a method of examination, and it is my privilege to-day to briefly indicate to you some of the ways in which it may be of service to physicians, in contradistinction to surgeons. It is chiefly adapted to certain lines of study, and its limitations are drawn by pathologic conditions which involve a change in shape, as in cardiac enlargement; in chemic composition, as in rickets and calculi; or in density, as in pneumonia. I shall limit myself to a few words in regard to the method of making examinations and then take up, by way of illustration, some of the diseases in which they most readily find their application.

The apparatus required in making medical X-ray examinations is as yet expensive and difficult to manage. It should be of the best, and furnish a steady light, neither too strong nor too weak, and of a quality to differentiate well between different tissues, that is, adipose tissue, muscles, and tendons. It is important to be able to vary the intensity of the light while looking in the fluoroscope.[2]

The examination may be conducted with the patient in any position. Hospital patients who are too ill to sit or stand may be placed upon a stretcher and carried to the X-ray room. The stretcher may then be placed upon suitable supports and an examination made without disturbing the patient. In private practice, if the patient is too ill to come to my office, I send a portable X-ray apparatus to the house. The room should be darkened and the physician be careful to wait five or ten minutes in the dark room, or else wear dark smoked glasses a few minutes (if in the daytime) before making the examination, in order that his retinæ may be in a condition to use the fluoroscope. The tube should be placed below the stretcher, under the mid-sternum, on a level with the fourth rib and two feet or more from the patient; it should be brought to its exact position by plumb lines. The outlines, as seen in the fluoroscope, may be recorded by first dotting and then drawing them on the skin with a crayon[1] opaque to the rays, but the physician must bear in mind that the skin may be moved either by the crayon or by the movements in respiration or by changes in the position of the patient. These lines may be traced on tracing-cloth, or they may be measured off and transferred to a chart.

Among the scores of thousands of examinations which have already been made with this new agent by persons necessarily inexperienced it is not surprising that in some instances harmful effects have followed; but the number of such effects is so small, when all the circumstances are taken into consideration, as to prove that with the better knowledge furnished by experience, the rays are practically harmless. Untoward results from X-ray examinations are, I believe, unnecessary, and entirely avoidable. I have never seen any inconvenience follow their use in the more than one thousand examinations that I have made.

Among the many ways in which the X-rays assist us is that demonstrated by Dr. Fisk of New York, who has shown how gouty deposits may be recognized by an X-ray skiagraph; he has also pointed out that a differential diagnosis may be made between a gouty and a rheumatic process.

Examination of the Heart in Health.—The best view of this organ is obtained during full inspiration, as then the diaphragm is so depressed as to allow the apex to be seen; in some persons the heart is depressed during full inspiration about one inch and pushed toward the right so that the right ventricle may in some cases be indicated on the right side of the sternum. In expiration, the outlines of the heart are not so complete, as the diaphragm is then higher. The apex beat, as felt, does not always

[1] Read by invitation at the Ninety-Second Annual Meeting of the New York State Medical Society, January 25, 1898.

[2] This may be done with the static machine, by varying the length of the spark-gap or the speed of the machine; with the coil, by varying the spark-gap, changing the speed of the commutator, or using more or less condenser. I some time ago devised adjustments for thus varying the intensity of the light and have found them a necessary part of the apparatus. I have also arranged a brush for the commutator of the coil so that it now requires little or no attention. The static machine and the coil were devised by Messrs. C. L. Norton and R. R. Lawrence of the Massachusetts Institute of Technology and they are made by E. S. Ritchie & Sons, Brookline, Mass.

[1] This crayon is made by mixing vaselin with some heavy powder such as bismuth or oxid of lead, or mercury and a little lampblack; is about one-eighth of an inch in diameter, and covered with paper to give it stiffness.

correspond to the apex of the heart as seen in the fluoroscope; by means of this instrument we see that it is sometimes lower. On the left side of the sternum the outlines of the ventricles and the pulmonary artery may be seen; on the right side, what is seen depends upon the excellence of the apparatus and also upon the individual examined. Under favorable conditions both the right auricle and the border of the right ventricle are visible.

In disease the fluoroscope enables us to get a much more complete outline of the heart than can be obtained by auscultation and percussion, and even in health, although the difference here is not so marked, the advantage is with the fluoroscope. The size of the heart in disease is an important element in estimating its condition, and guides us in prognosis and treatment. It is not necessary to emphasize the cardinal value of this knowledge in cardiac disease. The fluoroscope enables us to determine the position of the left and usually the right border of the heart, whereas by percussion, in some patients, the heart may seem to be either larger or smaller than it is. By means of the fluoroscope the size of the right auricle may frequently be estimated. In cardiac hypertrophy and dilatation the size and position of the heart may be more fully obtained with the fluoroscope than by any other means. The left border of the heart may sometimes extend beyond the nipple and approach so near the left wall of the chest that percussion gives an area of dulness, reaching, for example, to the anterior axillary line, whereas the fluoroscope may show that the heart is not so enlarged as the former method of examination seemed to demonstrate. The exaggerated idea of size, in such a case, is due to the fact that the heart is so abnormally near the left wall of the chest that by percussion its lateral is not distinguished from its anterior portion. We may even obtain a better knowledge of the size of a distended heart by means of the fluoroscope than by an autopsy. If we look through the body from side to side, on a level with the diaphragm, during full inspiration, we see a light area triangular in shape, the lower side of which is bounded by the diaphragm, the anterior by the heart, and the posterior, which is less defined, by the spine. It is by means of this area, if the lungs are normal, that

FIG. 1.

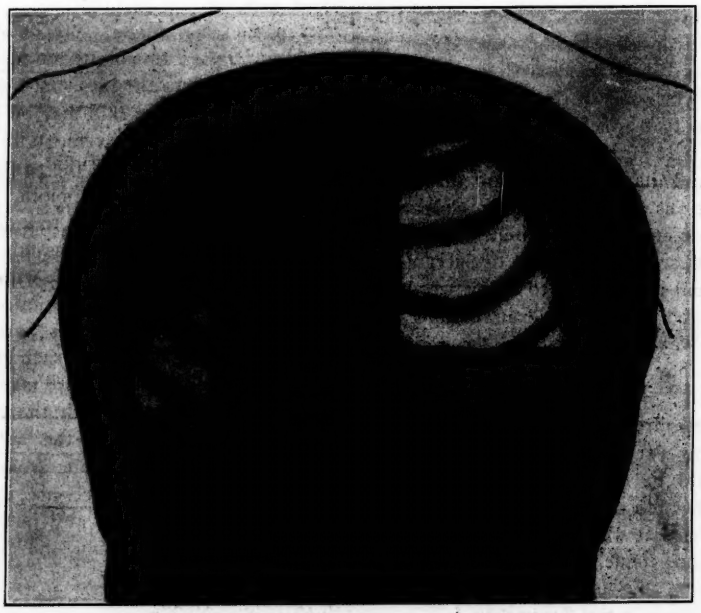


Diagram illustrating the appearances seen in the fluoroscope in a patient with tuberculosis on the right side and pneumohydrothorax or pneumopyothorax on the left side.

The right side is encroached upon by the displaced heart and by the dense tuberculous process at the top of the lung; the excursion of the diaphragm between expiration and inspiration is less than normal (the broken line indicates its position in expiration).

On the left side the appearances, when the patient is examined in a sitting position, remind one of a tumbler partly filled with ink. If the patient bends backward or forward the height of the fluid on the chest-wall changes; if to the left the beating heart is exposed to view; if the patient is shaken gently the surface of the fluid is seen to be agitated; it is also seen to be disturbed by the pulsations of the heart.

This diagram is made clearer by a comparison with Fig. 2, which illustrates the appearances seen in the fluoroscope in a normal chest.

we are able to get a view behind the heart and between it and the spine, and this area will be found to vary in size under different conditions. With an enlarged heart it may be much smaller, or it may be nearly or quite obliterated. Enlargements of the heart may be detected not only by observing the right and left borders, but also by seeing the posterior and lower borders; a collection of pus or a growth behind the ventricles or a pericardial effusion, for example, would also alter the appearance of or obliterate this area. The whole of the anterior border of the heart, as well as of the posterior border, may also be made out in a few individuals when looking through the body from side to side.

ample, can sometimes be seen in the fluoroscope in this disease.

Displacement of the heart when there is pleuritic effusion, especially when the effusion is on the left side and the heart therefore displaced to the right, is readily seen in the fluoroscope, when often it is not demonstrated by means of percussion. In pleurisy of the left side with effusion, or when the heart is enlarged, the outlines of the right ventricle may be seen much to the right of the sternum. A dilated right auricle, especially in emphysema, may also be distinguished. In one patient during convalescence from pneumonia, the heart was adherent in such a way that the apex was tilted up at each full inspi-

FIG. 2.

Cut showing the heart and diaphragm of normal chest as seen in the fluoroscope during full inspiration. The broken lines show position of heart and diaphragm in expiration.

In a much-dilated heart we can see that its volume is made smaller by deep inspiration, which shows that it is capable of being compressed by a forced inspiration. In a few cases we may thus be assisted to distinguish between a heart which is simply dilated and one which is hypertrophied. Enlargement of the heart in arteriosclerosis may be detected, as may also the unnaturally small heart which obtains in certain conditions. We may also find evidence of changes in the arteries in arteriosclerosis. I have taken an X-ray photograph which shows normal arteries, and those in arteriosclerosis are, of course, even more easily skiagraphed; the radial arteries, for ex-

ration instead of being forced downward.

The fluoroscope cannot always be employed to ascertain the size and position of the heart, as it requires for its use that the neighboring lungs be in a fairly healthy condition, otherwise these organs are less permeable by the rays and do not furnish the contrast with the more solid heart which is necessary in order that it may be brought clearly into view. As we shall see later, fluid in the pleural cavity or a dense lung may partly or even wholly obscure some of the cardiac outlines as well as displace the heart. The condition of the lungs may hide that of the heart in so far as it is obtained by direct view with

the fluoroscope, but on the other hand the condition of the lungs may be an indication of disease of the heart, or of the kidneys. If the circulation of the lungs is such as to cause a passive congestion or edema, it is difficult for the rays to pass through them, and we find the pulmonary areas darker than usual. The practical value of this information may be illustrated by one or two cases.

CASE I.—A. B., was thought by his physician to be suffering from emphysema of the lungs consequent upon asthma, to which he had been subject for sixteen years. There was much dyspnea. I made an X-ray examination which showed that the lungs were darkened by passive congestion, or edema, and the heart enlarged. Auscultation indicated a mitral lesion. I advised rest, together with digitalis in suitably large doses. This treatment was soon followed by improvement and the disappearance of the dyspnea.

CASE II.—C. D., had chronic interstitial nephritis, but he was able to be at his business every day. An X-ray examination showed an opacity of the lungs due to edema, which suggested that the patient was in a more critical condition than had been indicated by any other sign or symptom and he was therefore cautioned to put his affairs in order and thus given an opportunity to advantage his family by many thousands of dollars. He suddenly died within two months.

In certain cardiac diseases we are now able to follow the improvement of the patient not only by the disappearance of the dyspnea, but also by watching the lungs in the fluoroscope and observing them gradually grow clearer and clearer, and sometimes, also, by seeing that the enlarged heart has become reduced in size.

Pericardial effusion may be recognized with the fluoroscope more certainly and readily than hitherto, and the outlines of the pericardial sac, when drawn on the chest, make an excellent guide when tapping the pericardium, should such a procedure be necessary.

Thoracic aneurism was among the earliest diseases recognized by the medical use of the X-ray, and now, an X-ray examination is the accepted way of making or confirming the diagnosis of this disease. Often an aneurism of the thoracic aorta may not be recognized in its early stages by ordinary means of examination and may be overlooked by several excellent diagnosticians; also, a very large aneurism may give no definite physical signs. In this connection the following case is of interest.

CASE III.—M. C., was thought by his physician to be suffering from a stricture of the esophagus, and a bougie had been passed every third day for several months. Three weeks before he was sent to me for an X-ray examination the bougie was not used and the symptoms improved. The X-ray examination showed that he had a small aneurism of the thoracic aorta.

Let us now briefly consider some of the applications of the X-ray in diseases of the chest other than those of the heart and aorta. In health the lungs are readily traversed by the ray and they appear in the fluoroscope as light areas on either side of the backbone and the heart. The lower portion of the lungs, bounded by the diaphragm, is seen to move up and down through a distance of about half an inch during quiet breathing, and to descend during full inspiration to a point about two and one-half inches below its level in expiration. There are three principal ways in which the fluoroscope may lead us to suspect disease in the chest: (1) The appearance of the dark areas which occur in tuberculosis, pneumonia, carcinoma, diaphragmatic hernia, gangrene of the lungs, and in echinococcus cyst, infarction, pleurisy, empyema, etc., due to the increase in density, which, by obstructing the passage of the ray, diminishes the normal brightness in the chest or changes its normal outlines; (2) the occurrence of abnormal brightness which is found in emphysema and pneumothorax consequent upon decrease in density, which makes the lung area appear lighter than in health as seen in the fluoroscope; (3) the restriction of the maximum excursion of the diaphragm and its altered position and curve from that observed in health.

The fluoroscope shows that certain changes are characteristic of special diseases. For example, in tuberculosis I observed nearly two years ago[1] that the consolidated portion of the lung appeared darker than normal in the fluoroscope; this consolidation usually beginning at the apex of one lung, The expansion of the lung is also reduced, either by changes in itself or in the pleura, and therefore the excursion of the diaphragm downward is diminished during full inspiration, but this muscle is carried up into the thorax as high, or it may be even higher than in health. If a patient with tuberculosis is examined from time to time with the fluoroscope the pictures presented are usually as follows: (1) The apex of one lung is darker, as already stated; the clavicle and upper ribs are less marked on the diseased than on the normal side; the darker area extends more and more as the disease progresses, and finally may cover nearly all the space occupied by one lung, so that no ribs or other outlines are seen on the affected side. Before this latter condition develops the apex of the other lung begins to darken and this area continues to extend. The diminishing excursion of the diaphragm, which is also a characteristic feature of this

[1] See "Notes on X-Rays in Medicine," *Transactions of the Association of American Physicians*, April, 1896.

disease, may likewise be observed, and sometimes may be the earliest sign of an abnormal condition of the lung. In this connection the following case is of interest:

CASE IV.—B. F., a woman forty-six years old, with bronchitis, was a patient in my service at the Boston City Hospital in February, 1897. The only evidence of other disease of the lung was the diminished excursion of the diaphragm. This moved only one and a quarter inches on the *left side* (which is much less than normal, and was higher in the chest than in health), but full two inches on the right side. She was discharged from the hospital March 4, 1897, but was readmitted into another service during December of the same year. At this time the signs on auscultation and percussion were indefinite, but bacilli were present in the sputum; on January 5th, 1898, I examined her again with the fluoroscope, which showed that the whole *left* apex, and to a less extent the right apex, was darker than normal and that the excursion of the diaphragm on the *left side* was less than half an inch, and on the right side one and one-quarter inches.

In some cases it is possible by means of the fluoroscope to anticipate, especially in acute tuberculosis, the knowledge gained later by auscultation and percussion, and also, to better appreciate the amount of lung-tissue involved in the different stages of the disease. I have detected signs of tuberculosis in the lungs by means of the fluoroscope after a physical examination had failed to show them. In cases in which the suspicions of the practitioner are aroused by the first examination, a second one should be made, after an interval, to verify or disprove the first.

It is essential in tuberculosis to use every possible means to determine the condition of the lungs in order to decide upon the course the patient should pursue, and, by the aid of the information obtained from the fluoroscope, a long and costly journey in a fruitless search for health may, in some cases, be avoided—that is to say, we may find by means of the fluoroscope that the lungs are more diseased than the usual physical examination indicate; or, on the other hand, we may detect, it is too soon to say in what proportion of cases, an abnormal condition of the lungs before it is suggested in any other way and so early that the best opportunity for arresting the disease is afforded. It is unnecessary to emphasize the value of early recognition in a disease often so amenable to treatment in the beginning. I advise young adults with a tubercular family history to have an X-ray examination from time to time, or immediately if they are out of condition. In other papers[1] I have discussed at length the appearances seen in the fluoroscope in pulmonary tuberculosis, and therefore will not go further into detail here.

In pneumonia the affected areas are easily recognized in the fluoroscope, and in a central pneumonia, may be seen when auscultation and percussion do not reveal them. The excursion of the diaphragm is also restricted, and the heart may be much displaced to the right, if the pneumonia is only on the left side. As the patient improves the dark areas are seen to disappear and the movement of the diaphragm to lengthen. A diminished respiratory movement and areas darker than normal may be seen after an abnormal condition of the lungs ceases to be detected by auscultation and percussion. An empyema, as is well known, may follow pneumonia, but may be overlooked for some time; we can, however, find evidence of its presence by means of the X-ray. The pleuritic effusion which sometimes accompanies pneumonia may be suspected in a given case and yet proved not to exist if a bright area and the outline of the diaphragm below the dark pneumonic portion are visible in the fluoroscope.

In pleurisy with effusion, or in empyema, the outlines of the lower part of the chest are dulled or obliterated, especially the diaphragm line. If the effusion is large, the whole chest is dark, and the heart and mediastinum are displaced. In a circumscribed pleurisy or empyema an exploring needle may fail to reach the desired spot, but we may sometimes, by means of the fluoroscope, exactly outline the limits of the fluid. In one patient I drew such an outline, and its correctness was confirmed at the autopsy.

If the lungs are less dense than normal, as in emphysema, the area is brighter than in health and the distended lung or lungs may reach lower in the chest than normal. The maximum excursion of the diaphragm is much less than in health, as this muscle does not rise so high in expiration. These two signs are characteristic of emphysema, and in the later stages the enlarged ventricles and also the dilated right auricle are seen; the heart also lies in a more vertical direction and its position is not much changed by a deep inspiration. In young people, especially, an emphysema may be overlooked on auscultation and percussion, but is readily detected in the fluoroscope. I recall a girl of fifteen years who had dyspnea on exertion, the result of an emphysema. An appreciation of this condition was obtained only by an X-ray examination. On the other hand, the fluoroscope may show that there is little emphysema when auscultation and percussion suggests that it is present to a considerable degree.

In pneumothorax, the diaphragm is very low, loses its normal curve and movement on the affected side,

[1] "A Study of the Adaptation of the X-rays to Medical Practice," *Medical and Surgical Reports of the Boston City Hospital*, January, 1897. "The Röntgen-Rays in Thoracic Diseases," *American Journal of the Medical Sciences*, December, 1897.

and the heart and mediastinum are seen to be displaced to the healthy side. The fluoroscope is also useful in pneumohydrothorax when the patient is examined sitting up. (See Fig. 1 and Fig. 2.)

It is unnecessary to further refer to special diseases; it is obvious that certain pathologic conditions involving change in density will make the lungs more or less opaque to the X-ray. It is of interest, in passing, to note that even in health the brightness of the pulmonary area varies. It is lighter in deep inspiration than during expiration. There must, therefore, be more blood in the lungs at certain stages of respiration than at others. Further, not all persons have the same pulmonary brightness. It is less in a stout, muscular man than in a thin man. We can learn to make allowances for these differences in individuals as we do in percussion, and further we usually have an opportunity to compare a healthy with a diseased side.

In the following four cases, the only ones in which both an X-ray and a post-mortem examination were made at the Boston City Hospital, there was complete correspondence between my X-ray examination and the autopsy, which occurred not long after:

CASE V.—G. H., was a young man whose lungs, as seen in the fluoroscope, were normal; the post-mortem gave the same result. It was interesting to note that the heart in death was somewhat higher than in life, and did not extend so far to the right.

CASE VI.—P. C., a patient with pneumonia. Both the fluoroscope and the autopsy showed that the whole of the right upper lobe and a portion of the middle lobe were involved.

CASE VII.—D. F.; this patient had an old encysted pleurisy extending vertically along the outer wall of the left chest from the third to the ninth rib. These outlines seen in the fluoroscope, and drawn on the skin, corresponded with what was found at the autopsy.

CASE VIII.—J. K., a patient with arteriosclerosis; observations and tracings made by means of the fluoroscope showed dark areas to the right of the sternum, and at the post-mortem a calcification in the aorta near the heart was found.[1]

The abdomen is a more difficult field for exploration, and nothing is seen as clearly there as in the thorax. The outline of the liver and of the spleen may be followed. I have also seen the outline of the lower portion of the left kidney.

Improved apparatus will doubtless enlarge the field of usefulness of this method of examination. Among recent improvements is a Crookes' tube in which the platinum is kept cool by a stream of water running through the hollow anode, which makes it practicable to use a light of far greater penetrating power than has hitherto been possible. This is the invention of Dr. William H. Rollins of Boston, and is only one among several excellent improvements made by him in the course of his investigation of X-ray tubes. Another is his method of lowering the vacuum after it has become too high by the continued use of the tube.[1] Dr. Rollins has also invented another appliance for surgical purposes. This is an aluminum camera, and consists essentially of an aluminum tube in the interior of which is a photographic film. The metal protects the film from light and moisture and yet allows the passage of the rays. Such an instrument may be put into any cavity of the body, for instance, the rectum, and then an X-ray photograph may be taken of a phosphatic calculus in the bladder.

In employing X-ray examinations; as in auscultation and percussion, many cases must be studied in order to recognize the conditions presented, and it is obvious that this method of examination is not so easily carried out as most others. It would be well, however, for the students in all our medical schools to be familiarized with the appearances of the chest as seen in the fluoroscope, while studying auscultation and percussion, for there is much that after having been demonstrated by both this instrument and the latter method will later be recognized more easily by auscultation and percussion alone. The eye having assisted the ear to make a more complete picture of certain conditions, the physician is enabled to get a better idea of these conditions in cases in which, for lack of an X-ray apparatus, he must use the ear alone. Further, the X-ray examination will teach him to better appreciate the limitations of auscultation and percussion as well as to interpret more correctly the information derived from them. X-ray examinations will be found useful to life-insurance companies.

In making a diagnosis, physicians will find that although much that the X-ray reveals can be recognized by other means it would often be an advantage to have this information confirmed by another method, and we must also appreciate that it can extend our knowledge into a field which was previously beyond our reach. A diagnosis may be made by an X-ray examination alone in certain cases, as in aneurism, emphysema, and pneumothorax, and in a few cases by it alone, but as a rule it is only one method and should be used in connection with others. The fluoroscope and stethoscope, for instance, supplement

[1] Since this paper was read a post-mortem has been made of a patient who died twenty-four hours after his admission to the hospital. He was not examined by the X-ray, but the autopsy showed how serviceable this examination would have been in prognosis. The patient was forty years old, had pneumonia of the whole of the upper left lobe, emphysema of the lungs, and a right auricle that was then so distended as to be equal in size to the ventricles. The pneumonia would have appeared in the fluoroscope as a very dark area, and in contrast with the bright emphysematous right lung, the right auricle would have been most conspicuous.

[1] These appliances are made by Kirmayer & Oelling, Bromfield street, Boston, Mass.

each other. X-ray examinations, in suitable cases, give earlier evidence of disease than the older methods. I daily find them indispensable in making a complete examination of patients who may have a disease of the chest, and can by them determine in some cases the presence of an abnormal condition, or more fortunately its absence, or sometimes completely change the diagnosis which had been previously made.

The X-ray is still too recent a discovery to have reached the limit of its usefulness, and its application in medicine deserves and will repay careful study.

TUBERCULOSIS OF THE UPPER AIR-PASSAGES.[1]

By EMIL MAYER, M.D.,
OF NEW YORK;
ATTENDING SURGEON TO THE NEW YORK EYE AND EAR INFIRMARY (THROAT DEPARTMENT); INSTRUCTOR IN LARYNGOLOGY IN THE NEW YORK POLYCLINIC.

THE short time at my disposal for the presentation of so exhaustive a subject must be my excuse for brevity on many points which would ordinarily require detailed and elaborate description.

Tuberculosis of the upper air-passages may be either primary or secondary. In the primary forms the disease is presented either as an ulcerative or a hyperplastic process. These may be differentiated from lupus and syphilis by the presence of numerous bacilli, and, clinically, by the history.

Although many maintain that the presence of tuberculous disease of the air-passages is coincident with acute miliary tuberculosis, yet cases of primary lesion have been reported in which pulmonary tuberculosis supervened two years after the local manifestations. The early diagnosis of the primary disease in the nose, as also in the pharynx and larynx, is of inestimable value when we consider that thus we may prepare for the coming storm, and with eternal vigilance as to habits of life, great care in the selection of nutritious food, and salubrious climatic influences, postpone the evil day when the system will be overwhelmed, or, still more happily, avert it altogether.

Nasal Tuberculosis.—Tuberculosis of the nasal passages is very rare indeed. It may be primary or secondary. In the former variety, persistent ulcers, bleeding upon the slightest touch, may be present, or there may be hyperplasia. The latter form occurs usually from the septum, the floor of the nose, or upon the turbinates. They may have irregular surfaces and vary from four to ten millimeters in diameter. Their nature is readily determined by microscopic examination.

By far the most frequent condition of the two is the secondary variety. In this, the diagnosis of pulmonary tuberculosis having been made, nasal ulcerations and hyperplasiæ are promptly recognized as existing from the conditions that are present. In both forms the symptoms are the same: Excessive secretion, the formation of tenacious crusts, the removal of which is followed by some hemorrhage, or a degree of nasal stenosis may be present. Pain is usually absent. The treatment consists in the thorough removal of all crusts by means of alkalin sprays, or by a solution of eucalyptol or menthol in albolene, and wiping with pledgets of absorbent cotton, after which an application, under cocain, of a fifty-per-cent. lactic-acid solution may be made. An insufflation of powdered iodoform or of nosophen is of value. New growths are best removed with a cold wire-snare, and their bases should be thoroughly cauterized with the galvanocautery under cocain anesthesia. If treatment of this kind be instituted early in the primary forms of the disease the prognosis is apt to be better than in any other tuberculous manifestation in the upper air-passages.

In the secondary forms of the disease only such treatment can be instituted as will add to the patient's comfort.

Pharyngeal Tuberculosis.—It is worthy of note that microscopic examinations of the lymphoid tissue, commonly called adenoids, removed from the vault of the pharynx have demonstrated the presence of the tubercle bacillus in quite a few instances. Such a microscopic finding is, of course, an indication for careful observation and attention. In about one per cent. of all cases of tuberculous laryngitis there are pharyngeal symptoms. This form of tuberculosis also occurs primarily. Thus, cases are cited in which a single tuberculous ulcer was found on the tonsil; still, the disease is very rare in this location. The velum and soft palate are most apt to be affected, and under such circumstances a number of minute gray nodules, which eventually break down and ulcerate, are found in these parts.

The chief symptom of pharyngeal tuberculosis, secondary to the disease in the larynx, is pain, usually extending to the ear. No pain is so constant or so distressing as this. The suffering becomes very acute, the agony is pitiful, the patient refuses food, there is constant rasping to avoid swallowing the abundant saliva, and the physician hastens to relieve the symptoms with every means at his command. An examination readily reveals the condition. The uvula is usually intensely swollen and edematous, and, covering the whole of the soft palate, the faucial pillars, and the tonsils are grayish sloughs in separate patches. The surrounding local

[1] Read at a meeting of the Harlem Medical Association, March 14, 1898.

anemia aids in differentiating it from syphilis, as does the absence of great destruction. It is more difficult to differentiate from lupus, however, but here the microscope will show abundant tubercle bacilli in the tuberculous cases, only a very few being found in lupus.

The *treatment* must be heroic. There is no chance for recovery, and the physician must be sufficiently humane to liberally administer one of the more powerful anodynes, irrespective of the fear of the patient's becoming addicted to drug-habits. Morphin, in combination with cocain, freely given every hour, with cocain sprays used before deglutition, the application of lactic-acid (fifty-per-cent.) solution to the affected parts, incision of the edematous uvula, all these measures will relieve and call forth expressions of sincerest gratitude from the sufferer. One of the most practical suggestions for the treatment of these affections was made by Delavan. This consists in giving the patient nutritious enemata for several days and no medicine nor food by the mouth, resting the muscles of deglutition. By this short rest much relief is occasioned and deglutition becomes no longer painful, or very slightly so.

Tubercular Laryngitis.—Perhaps every writer on this subject mentions the case of a child aged four and one-half years, reported by Demme, who died of tuberculous meningitis, in which the tuberculous deposits were found in the larynx at the autopsy, while the pulmonary tissues were normal. Primary tuberculosis of the larynx does occur, but the vast majority of cases occur either simultaneously with pulmonary tuberculosis or as a sequel thereof. The latter forms are by far the most frequent.

The following is a brief history of a case of simultaneous pulmonary and laryngeal tuberculosis:

"A girl of seventeen was referred to me by her family physician in July, 1897. She gave a history of having had a short cough with slight expectoration, and accompanied by huskiness for the past two months. Her voice was hoarse at the outset, and finally became less and less clear, and at the time of presentation the aphonia was almost complete, she was only able to whisper. Her family history was good, her father and mother being of strong physique. Her general condition was very good. There had been no attacks of hemoptysis, nor had there been any night-sweats. There was no perceptible loss of flesh. A laryngoscopic examination showed that both arytenoids were greatly infiltrated, so much so that it was only by repeated examinations that the vocal cords could be seen. There was no visible destruction of tissues, nor any evidences of acute inflammation. The swollen arytenoids met in the center, did not decrease on application of cocain, and the mucous membrane over them presented a perfectly normal appearance. It was apparent then that the aphonia was due to the mechanical presence of these arytenoids, which prevented action of the vocal cords. There was marked consolidation at both apices, and the sputum was full of tubercle bacilli. No improvement of the voice has occurred as the result of treatment. The latter has been non-surgical because of the extreme sensitiveness of the patient. The patient is still under observation, and in addition to other forms of treatment, is receiving Maragliano's serum hypodermically. This treatment was instituted by the parents on their own responsibility. No marked benefit has been noted from it; on the contrary, the pulmonary destruction is advancing.

In that most frequent form of tuberculosis of the larynx, secondary to pulmonary tuberculosis, the arytenoids are most often involved, next the ary-epiglottic fold, and the true vocal cords. The hypertrophy rapidly gives place to ulceration, which soon extends to other parts. An examination of the larynx shows the epiglottis greatly swollen in its upper and anterior border, assuming a crescentic or turban-like shape. The arytenoids are also swollen, and the narrow chink left for breathing is usually filled with mucus. Ulceration occurs in the interarytenoid space, and also in all parts of the larynx.

A point in diagnosis of this affection is the extreme pallor of the soft palate. Practically every case of tuberculous laryngitis shows this anemia to a marked degree.

The symptoms present are huskiness or complete aphonia, more or less pain on swallowing, severe cough, and occasionally dyspnea has been observed. The latter may become severe enough to require intubation or tracheotomy. Tuberculous laryngitis may be differentiated from all other affections by a microscopic examination of the sputum or of parts removed.

Treatment.—The treatment consists of the internal use of creosote or guaiacol; the local application of menthol in olive oil, lactic acid, iodoform, medicated steam; careful regulation of the diet, and, finally, the application of suitable hygienic measures. Surgically the arytenoids have been removed, and from this treatment Krause of Berlin, Heryng of Warsaw, and others in this country, claim gratifying results.

In all these cases the question of a change of climate must be very carefully considered. That these patients require local treatment, which is rarely attainable in the resorts sought out by them, is the main reason for keeping them under observation. Their physical condition often precludes an extended trip, and in advanced cases nothing is gained by sending them away. In cases in which the disease is yet at an early stage, the most important thera-

peutic remedy is a complete change of surroundings to a climate suited to the physical condition. Not enough stress is laid upon this, for we are apt to mention a locality on very broad general principles without carefully considering the needs of the patient. The physician should know where the proper climate is to be found, and then, having a knowledge of the nature of the disease and the demands of the case in hand, should render his opinion.

Generally speaking, a New Englander will thrive in the Green Mountains, the Adirondacks, or the Catskills, while his warm-blooded Southern brother will improve in the piney woods of North Carolina, or at Aiken, S. C. Others again, do well far away from the sea, and for these Phœnix, Arizona, or the mountains of Colorado seem to be the most salubrious. Southern California has much in its favor for certain patients. It is not enough to select a resort, but the habits of life should be carefully regulated. The average mountain home or boarding-house seems to be worse than useless. These places are usually styled "Inns," and are to be found in parts of the country where many tuberculous patients congregate. The patient is given a room but lately occupied by another unfortunate, himself in the last stages, and who has probably gone home to die. Nothing is done to destroy any remaining germs, and the new occupant is being constantly reinfected.

By far the most ideal mode of life is in a cabin made of wood and containing a single apartment, or a tent with wooden flooring, and the more solitary it stands the better. A bedstead is readily made by any woodsman from the limbs of trees, and a spring and hair-mattress, with appropriate bedding, complete this important part of the domicile. A few other articles of a primitive nature, such as chairs, basins, etc., will be required.

An enterprising company in one of the Southern resorts has small wooden dwellings or more pretentious ones on sale. Life in these little houses is not apt to be so very tedious, and especially if the invalid can arrange to be quite by himself except for a competent guide. The latter, in addition to being a very good cook, is huntsman, oarsman, and fisherman. He is often quaint and quite a philosopher. His home is in a smaller tent, and an adjacent boarded space gives shelter to his stove, refrigerator, and table.

Through the courtesy of one of our most distinguished citizens the writer was enabled to spend a few days in a camp and partake of the joys of outdoor life. I trust I may present a brief description for your benefit and also for that of your patients.

This camp is on the edge of a beautiful lake in the heart of the Adirondacks, two miles away from any human habitation, and reached by a row-boat after an hour's ride by coach from the station. The wooded hills have pines, firs, and hemlocks in vast numbers, the ground is thickly carpeted with moss and the débris of leaves, the accumulations of centuries. Here and there this carpet is trodden a little more firmly, and is then called a trail. Whether the day's outing be inland to some trout pond which is reached after a long walk through the woods, or a row on the lake with fishing for pastime, or even hunting for game, in season, it is bound to be one of pleasure. The guide knows where to begin to fish, and where the coolest spring of pure water is, and he knows where he may start a fire for dinner. He has brought the necessaries along, and we are called ere long to partake of the meal he has prepared, for which the appetite has become fully sharpened. While we miss many an essential to fine table service, we do ample justice to the tasty food supplied. Rowing back, and trolling the while for pickerel or bass, we reach camp thoroughly sunbrowned and delightfully tired.

Supper is soon served and night comes on. Except for the rustle of the leaves, the occasional hoot of an owl, the chirp of crickets or smaller insects, and the gentle lap of the waters of the lake as they strike the stones on shore, all is at peace. The moon shines on the water and a cloudless sky shows a myriad of stars; or, it storms. The rain beats down on the leaves and drips on the tent from which it rolls off to the ground, and to the soft music of its patter we lie down, and soon "Nature's sweet restorer, balmy sleep" comes to us and we awaken the next morning thoroughly refreshed. To an invalid how much this all means you know, and to many a one it brings a new lease of life in his own sphere of usefulness.

A CASE OF PRIMARY MULTIPLE SARCOMA OF THE STOMACH, FOLLOWING GUN-SHOT WOUND.

By HARLOW BROOKS, M.D.,
OF NEW YORK;
ASSOCIATE IN BACTERIOLOGY, PATHOLOGICAL INSTITUTE OF THE NEW YORK STATE HOSPITALS; INSTRUCTOR IN HISTOLOGY IN THE BELLEVUE HOSPITAL MEDICAL COLLEGE; ASSISTANT CURATOR TO BELLEVUE HOSPITAL.

FOR the history of the following cases I am indebted to Dr. J. D. Brown, late House Physician, Fourth Medical Service, Bellevue Hospital:

Male, aged sixty-seven years; born in Germany; resident in the United States during thirty-five years. The patient was admitted to Bellevue Hospital October 26, 1895. The family history was negative. He had been a beer-drinker for the past forty years, usually taking four or five glasses daily. During the Civil War he received a bullet-wound in

the region of the ensiform cartilage. The ball was not found, but his recovery was uneventful.

About seven months before entering the hospital the patient began to be troubled by pains in the abdomen. He steadily lost strength, and his appetite began to fail. He complained of headache and of spots before the eyes. The feet and ankles became swollen. He rapidly lost weight, and was finally obliged to give up his occupation of cabinet-maker. About six months previously he developed a cough with considerable expectoration which was occasionally bloody. At this time he suffered from dyspnea upon slight exertion. He complained of pain located in the left mammary region.

While in the hospital the patient's appetite remained fairly good. There was tenderness of the abdomen, but it was not localized. At times he vomited quantities of blood. In one of these attacks the nurse stated that he vomited as much as a pint of bright, red blood. The stools were occasionally tinged with blood. Shortly before death purpuric spots developed beneath the skin of the body and extremities. The physical examination, as far as tumor of the stomach is concerned, was negative. He died December 31, 1895. The autopsy was performed twenty-four hours after death.

Autopsy.—The body was fairly well nourished. The skin and mucous membranes were anemic. There were a few purpuric blotches over the sides and back of the body, over the forearms and backs of the hands. There was an oval scar half an inch long just to the left of the right nipple line and between the seventh and eighth ribs (bullet wound). There was a considerable mass of bony tissue thrown out from the ends of the seventh and eighth ribs, beneath this area. Rigor mortis was slight.

The panniculus adiposus was small in amount and highly colored. Muscles were fairly good in volume, but soft and anemic.

Pleura.—There were general old pleuritic adhesions over the apices of both lungs.

Heart.—Small, weighed eight ounces; the chambers were contracted; the heart muscle was firm, but light in color. The segments of both aortic and mitral valves were considerably thickened. The conus arteriosus showed endarteritis of moderate degree; the coronary arteries, a few diffuse areas of endarteritis.

Respiratory System.—The mucous membrane of the trachea and bronchi was considerably congested. The pulmonary artery contained a small amount of antemortem clot. The lung tissue showed extensive emphysema, with moderate congestion posteriorly.

Liver.—Weight, two pounds, seven ounces. The left lobe was very small, and was adherent on its inferior surface to the wall of the stomach. The capsule was smooth. There was an old scar situated on the superior surface of the left lobe. This area corresponded with the external scar mentioned above. The tissue was firm in consistence, and light brown in color. The interstitial tissue was apparently considerably increased, and fatty degeneration was marked.

Spleen.—Enlarged; weight, two pounds. Regular in contour. Capsule thickened. Tissue firm and solid, light purple in color.

Adrenals.—Negative.

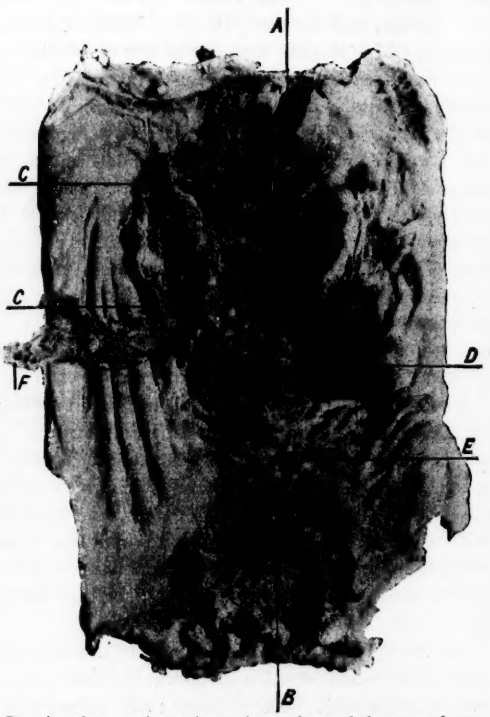
Kidneys.—Weight, five ounces each. Capsules were rough and adherent. Cortex thin and irregular. Markings indistinct and irregular. Tissue firm. Cut surface somewhat granular. Perivascular connective tissue considerably increased.

Bladder.—Small; it contained a small amount of clear, light-colored urine. Mucous membrane normal.

Pancreas.—Small; the tissue was firm and light pink in color.

Stomach.—The stomach was small and its peritoneal coat smooth. Just to the right of the esophageal entrance this organ was adherent to the inferior surface of the left lobe of the liver over an area about three-fourths of an inch in diameter. On attempting to separate these adhesions, the wall of the stomach over this area came away attached to the liver. The portion so detached was found to present simply an area of dense cicatricial tissue. On incising the stomach the area of adhesions was found to be surrounded on the internal surface by a circle of nodular masses, varying in size from half an inch to an inch and a half in diameter. Similar nodules were found scattered over the anterior and

FIG. 1.



Showing the superior and anterior surfaces of the stomach mucosa. (*A*) Pyloris. (*B*) Entrance of esophagus. (*C-C*) Area adherent to and detached with the liver. (*D*) Large nodule, with ulcerated cap. (*E*) Small nodule removed for microscopic examination. (*F*) Strip detached from border of *C-C*.

superior surfaces of the organ, and extending to the pylorus, where they nearly occluded the passage, into which they projected in large, fleshy masses, leaving only a narrow tortuous canal into the duodenum. These nodules were firm, and for the most part were covered by the mucous membrane of the stomach. In places the mucous membrane over these masses was eroded and ulcerated, and in such areas the dilated vessels showed evidences of recent hemorrhage; some of the nodules were surmounted by masses of blood-clot. The cut surface of the nodules was firm and somewhat granular, light pink in color, and showed numerous blood-vessels. Connective-tissue stroma was not evident. The mucous membrane remained intact over the majority of the masses, which evidently originated in the submucous layers. The posterior and inferior surfaces of the mucosa were mostly free from the growth. The capillaries of the mucous membrane were universally congested. The stomach contained a dark, greenish fluid, evidently largely composed of partly digested blood.

There was no enlargement of the lymphatics in the region of the stomach, and there were no evidences of inflammation save in the area of adhesions before mentioned, where the process was evidently a very old one.

The external scar, the cicatrix on the superior surface of the left lobe of the liver, and the adhesions uniting the stomach-wall to the liver, were in almost a straight line.

Intestine.—The mucous membrane of the duodenum was slightly congested. Both large and small intestine were collapsed, and their mucous membranes were anemic.

Cerebral Meninges.—Normal.

Brain.—The brain was well formed; the hemispheres were symmetric; the convolutions broad and well marked; the sulci deep. The cortical layer of gray matter was deep and regular. The brain tissue was firm, but somewhat edematous. No lesions were evident. Weight of encephalon, two pounds, eight ounces.

No new growth beside that in the stomach was found in any part of the body. Microscopic sections of the nodular masses demonstrated that they were composed of small, round-cells, very similar in appearance and size to lymphocytes. The tissue was very compact and cellular. Blood-vessels were numerous, but were mostly of the capillary type, so that the cells were found lying in direct contact with the thin walls. Connective-tissue stroma was present in small amount, but no regularity of arrangement was present. The new growth was found to be located in the submucous layers, and in most cases the mucous membrane over the nodules was normal, though in certain areas infiltration had occurred upward between the gastric tubules (see Fig. 2). Small fibrils of connective tissue were found passing between the cells in every direction. (See Fig. 3.)

The submucous lymph-nodes appeared, for the greater part, free, but in places they were surrounded by areas of small round-cell infiltration, apparently inflammatory, and not neoplastic. In all the sections taken from various portions of the anterior and superior surfaces of the stomach the submucous layer of connective tissue was found to contain masses of greater or less size, and presenting the same characteristic picture in each case. One small nodule taken from near the esophageal opening (*E*, Fig. 1) presented the usual submucous masses, but in this section the glands of the mucous fold were found to be dilated, and, in places, of an almost adenomatous character. The submucous vessels were very large, and filled with blood-cells. Similar appearances were not found in any of the sections taken from other portions of the stomach.

The growth appeared to be a typical round-cell sarcoma. Its point of origin, no doubt, was in the submucous connective-tissue layers of the stomach. Notwithstanding the great similarity of the growth in its structure to lymphosarcoma, it seems probable that if this were the case more involvement of

FIG. 2.

(*A*) Tumor growths. (*B*) Uninvolved mucous membrane. (*C*) Lymph-nodule.

the lymph-nodes would have been present, and also that the growth would not have been so strictly localized as it was found to be.

From the location of the external scar made by the entrance of the bullet, the position of the scar on the surface of the liver and the area of old ulceration in the wall of the stomach, it seems probable that the bullet, after piercing the parieties, perforated the left lobe of the liver and passed on into the stomach. Unfortunately, the symptoms immediately following the infliction of the wound were not minutely inquired into, but from the anatomic findings we were forced to conclude that such was the

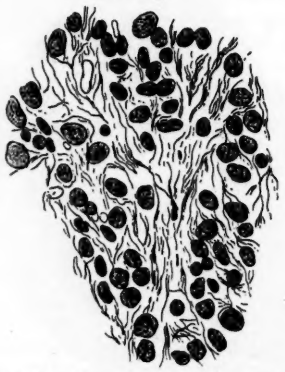
course of the bullet. That the new growth was primarily induced by the wound is negatived by the time elapsing between the infliction of the wound and the onset of symptoms indicative of gastric neoplasm. Yet it is probable that the irritation resulting from the old ulceration finally favored the formation of the growth, which evidently first developed near the seat of the old process.

Cases of sarcoma originating in such seats of irritation are commonly reported. From the character of the growth and from the clinical history it is evident that it developed quite rapidly.

Primary sarcoma of the stomach is an exceedingly rare disease. No, doubt, however, it is more frequent than the number of cases reported would seem to indicate, since microscopic examinations are not universally made in cases of gastric tumor, for the tendency is to rely upon gross appearances, which are extremely unreliable in differentiating between ordinary carcinoma and some of the varieties of sarcoma and endothelioma.

In most of the reported cases the growth has been located at the lesser curvature of the stomach, or its

FIG. 3.



Growth sketched under one-twelfth oil immersion (Zeiss).

maximum growth has been in this region. It is somewhat unusual to find sarcoma originating after adult life, and the advanced age at which the growth developed, not only in this case, but also in several of the cases recorded in literature, is quite striking.

Of the 15 cases of primary, gastric sarcoma which the author has found reported, 6 have been round-cell sarcomas, 4 of the spindle-cell variety, 2 myosarcoma, and 2 of uncertain type. The case reported by Hadden as lymphosarcoma is beyond doubt one of perithelioma, as the author very perfectly describes the structure of this, at that time, unrecognized growth. In none of these cases did ulcer or traumatism of the stomach-wall precede the development of the growth, and in this respect the author believes the present case to be unique.

WAR ARTICLES.

CAMP SANITATION AS APPLIED AT "CAMP TAMPA HEIGHTS," FLORIDA.

By HENRY I. RAYMOND, M.D.,
CAPTAIN AND ASSISTANT SURGEON, UNITED STATES ARMY.

THE underlying principle of sanitation in the field is the preventability of camp diseases. For in this high-noon hour of sanitary science the presence of preventable diseases among troops on an active campaign is an opprobrium upon the sound sanitary sense of the present age and generation, and may be set down either to criminal negligence on the part of the sanitary officer of the command or to the overruling imperiousness of military necessity.

The selection of a site and the sanitary care of a camp constitute the responsible and paramount duty of the medical officer, as sanitary adviser of the commandant of the expedition, and upon his judicial acumen will largely depend the effectiveness of the army as a potential force. If the site of the camp is insalubrious, diseases incident to camp life cannot be prevented and evil consequences will inevitably result. Some of the essential factors that enter into the proper selection of a camp-site in southerly latitudes may be briefly summarized as follows: Convenience of water and wood, accessibility to food-supplies and forage, avoidance of prevailing winds from suspicious localities, protection from the sun's heat by woods, and last but not least, dryness of soil. Observance of this last precaution will eliminate a multitude of evils, for it should be constantly borne in mind that if one of the three factors that are essential to the origin and spread of infectious diseases—heat, moisture, and organic decay—can be eliminated, the vicious circle will be broken.

The military camp on Tampa Heights has been wisely selected from a sanitary point of view. The source of the water-supply is a spring in the vicinity of Tampa that furnishes clear, cool, potable water for the inhabitants of the town and the adjacent encampment of United States troops. The camp supply is abundant and is conducted by pipes into a large reservoir with capacity of one hundred thousand gallons, the reservoir being elevated one hundred and fifty feet on scaffolding.

This water contains magnesium and lime, and is, on that account, laxative for those not habituated to its use. Though there has been a number of cases of diarrhea and one or two of dysentery in camp the past week, I am inclined to attribute their causation not entirely or alone to the drinking-water, but largely to indiscretions in diet, iced drinks and cream, and to the marked diurnal range of temperature with chilling of the body surface at night. The

heat of the sun's rays, while not excessive nor attended with much humidity of the atmosphere, has produced its quota of cases of ephemeral fever (thermic), superinduced by exercise at drill in a dust-laden atmosphere and upon a set of men not yet acclimated to this latitude, nor as yet provided with uniforms of suitable material for a tropical climate.

Camp Tampa Heights is located on a sandy soil covered in many places with a short growth of grass, which latter, however, soon becomes trodden down by the march of so many feet and the sand rises in dust-clouds and fills the eyes, ears, and nostrils with floating irritants and the imagination with clouds of battle smoke. One would have to dig many feet deep into this soil to come upon any solid substratum, and hence, the soil being so pervious to water and lying in an elevated locality the drainage is excellent.

Excavations for sinks and latrines are made in the sandy soil with so little expenditure of labor that pits have been constructed for these purposes in different parts of the camp and their daily accumulations of excreta are covered, night and morning, with the excavated soil. It is not unlikely that these vaults will be superseded by portable receptacles for the excreta so that their contents can be carted off, thus preventing any possibility of soil contamination and especially the conveyance, by flies and vermin, of disease-germs.

Second only to camp sanitation in importance is the personal hygiene of the soldier. Advise is cheap and the soldier like many of the rest of mankind learns many hard lessons by experience. But an effort is constantly made to impress upon each enlisted man who presents himself at sick call in the field that only by rigid adherence to the simple but salutary precepts of hygiene can he hope to avoid sickness in this climate, and imperatively so in Cuba. Avoid the use of alcohol in every form and in any measure, eschew the banana, crucify the luscious "mangrin," beware of the pastry and frozen cream that is vended so temptingly on the outskirts of the camp, be cautious of iced drinks, live abstemiously, bathe frequently, and sleep with some covering, however light, over you, and with as much covering as can be spared between you and the ground.

On the subject of prophylaxis, two measures are in contemplation on our departure from this comparative Eden to the disease-laden atmosphere of tropical Cuba. One relates to the use of quinin in doses of two to five grains daily as a preventive against malaria, and the other to the use of boiled water for drinking purposes to insure against paludal, typhoid, and yellow-fever (?) infection from that source. To insure the water being boiled, as well as to relieve it of its taste of flatness and insipidity, it would seem advisable to substitute for the plain boiled water a weak infusion of tea. The observance of this practice might be enforced by having the men fall in every morning just before marching and inspected as to their canteens being filled with hot tea; this liquid being hot on starting off would prevent the too early imbibition of fluids on the march.

In view of the possibility of spending a part of the rainy season in Cuba, where the tropical rainstorms descend as if the very windows of heaven were opened, I have busied myself to-day in rubbing a cake of paraffin over my blanket, trousers, shirt, felt hat, and other articles of apparel and then allowing the paraffin to soak in under the influence of the sun's heat until its presence cannot be detected by any outward appearance. This renders the garment water-proof as attested by actual trial and this quality of imperviousness is believed to be lasting. Many members of the medical and hospital corps have made use of the paraffin in a similar manner, having taken the cue from our chief surgeon.

TRANSPORTATION OF THE WOUNDED IN WAR.[1]

By JAMES P. KIMBALL, A.M., M.D.,
MAJOR AND SURGEON, UNITED STATES ARMY.

THE first stage in the travels of the wounded man is from the ground on which he has fallen to the collecting or first-dressing station. This station, according to army regulations, is "the nearest place to the combatants where the wounded and those caring for them may not be unnecessarily exposed to fire." Formerly this was a distance of not more than 500 or 600 yards, but the increased range of the modern rifle now necessitates the establishment of the first-dressing station at least 1000 to 1200 yards behind the firing line. There is usually one such station behind each regiment engaged, or if the regiments be small, one behind each brigade. To these stations bearers carry on litters the seriously wounded, after they have received on the field the necessary first aid, such as the application of a tourniquet in cases of severe arterial hemorrhage, and of improvised splints to broken bones.

The bearers are a part of the sanitary force, which varies somewhat in strength in different armies, but is commonly equal to about four per cent. of the troops in line. In some of the European armies in which the proportion was less than four per cent. the rate has recently been increased, because of the general belief that in future wars the number of wounded will be larger than heretofore by reason of the greatly extended range of the new rifle. In our own army no definite plan has yet been formulated for fixing the ratio of the sanitary to the combatant force. If, however, we assume that the sanitary

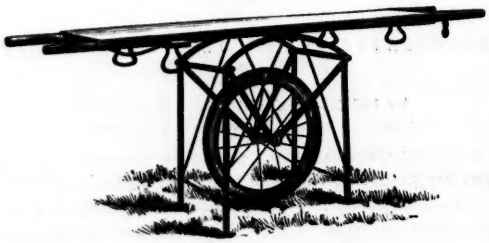
[1] Abstract of article in the *Albany Medical Annals*, April, 1898.

force is equal to four per cent. of the command, a division—the administrative unit of an army, which in our service numbers, on a war footing, 12,747 men—will contain in round numbers a sanitary corps of 500 men. This corps in most armies is composed of two classes, about equal in number—the hospital corps, which consists of men specially enlisted for the medical department and permanently attached to it, and the company, or regimental bearers, who belong to the fighting force, and have been instructed in the duties of litter-bearers and in the methods of giving first aid to the sick and wounded. During an engagement these bearers are temporarily detached from their companies for sanitary service with their respective regiments; that is, to give necessary aid to the wounded on the battle-field, and to carry the disabled to the first-dressing stations. At the dressing stations and beyond the wounded are cared for by men of the hospital corps. The plan of taking men from the combatant ranks to serve as litter-bearers is disapproved by some authorities, and the question is still an open one.

The medical officers of the division number forty-four.

Having considered the personnel, we now turn to the means of transportation. The first conveyance used in carrying the wounded from the field is the litter. The

FIG. 1.



The Remington Hand Litter-Carrier.

evolution of the hand-litter is an interesting subject, but we shall consider only its recent development in the United States.

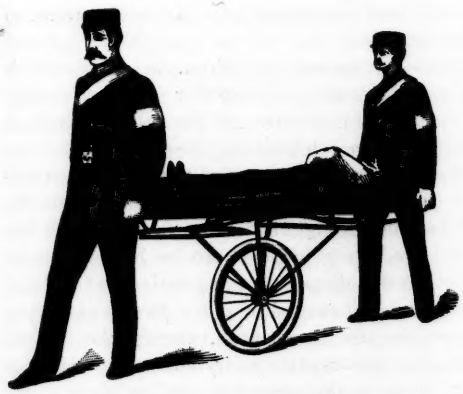
During the War of the Rebellion, and until lately in our regular army, the litter known as the Halstead was in use. This litter was eight feet in length, had folding wooden legs fourteen and one-half inches long, and weighed twenty-five pounds. It was a serviceable litter, and only when we contrast it with our present litter do we remember that the old one was heavy; that its legs were unnecessarily long, apt to become loose and unsteady, and to shut up unexpectedly; that its length and legs prevented its fitting into an ambulance, and that every wounded man on the way to hospital must therefore be lifted from litter to ambulance and from ambulance to litter, thereby wasting time and adding to the patient's suffering.

The present litter of the United States Army, model of 1895, weighs sixteen and one-half pounds. It folds compactly, and may be carried on the shoulder almost as easily as a rifle. The fixed wrought-iron stirrup-shaped legs, or rather feet, raise it four inches from the ground. The side-poles are seven feet six inches long, and the canvas bed six feet long by twenty-two inches wide. Two of the litters can be placed side by side in the regulation ambulance. Litter-slings—bands of worsted webbing to be passed over the shoulders and attached to the handles—are issued to the bearers as a part of their equipment, and are very valuable when the loaded litter is to be carried far.

The corps of trained men and the improved litter just described would seem to perfect the means of transporting the wounded to the first-dressing station. But there is still a weak point in the working of our scheme. Experience has shown that when the litters are wanted at the front in action, they are often far away in the rear with the ambulance-train, upon which they are carried. Troops, artillery, and ammunition-wagons have the right of way when battle is imminent, and ambulances and supply-wagons must not encumber the roads and must seek a place of safety. Thus it often happens that during an engagement, and perhaps for some time after, the litters are detained miles away from the battle-field.

It has been recommended that pack-mules be used to bring litters and medical supplies promptly upon the field. In the war with China, 1894 and 1895, the Japanese successfully used pack-horses for this work. The use of pack-animals seems the natural solution of the difficulty, for they can follow wherever troops go without obstructing the movements of the column. Yet, if for any reason pack-animals cannot be secured, men of the sanitary force

FIG. 2.



The litter-carrier in use.

could be required to carry the litters. Under these circumstances, when troops are in the vicinity of the enemy and battle is probable, the bearers should be ordered before leaving the ambulance-train to take the litters, one to every four men, and to carry them as they march in rear of the regiment. The light, compact litter now in use is easily carried by two men, and in fact is not an excessive burden for one man; and should the wheeled litter-carrier described below, or some similar device, be adopted, the work would be still further lightened.

At the first-dressing station dressings are applied,

urgent operations performed, and the wounded made ready for transfer to the ambulance station.

The ambulance-station is presumably 1000 or 1200 yards beyond the dressing-station, established "at some place of security in the rear, or in some convenient building near the field of battle." The site should have a convenient water-supply, and if possible it should be easy of access. To this station the wounded are brought in ambulances when practicable. If, however, on account of bad roads, or no roads, or the encumbrement of the way by troops and wagons, the ambulances cannot reach the first-dressing station, then litters must be used for the intervening distance.

The ambulance, like the litter, has been evolved from more or less crude beginnings, but it is not yet as well suited to its purpose as is the hand-litter. The pattern now in use in our army, adopted in 1892, carries two patients lying down or eight sitting up. When required for recumbent patients, the removable seats are hung against the sides of the vehicle, leaving a floor space which just holds two litters. The patients are, therefore, carried in the ambulance upon the same litters on which they have been brought from the field.

Wheeled litters, drawn or pushed by hand, have been modeled and remodeled from time to time, but on the chance ground of battle-fields, often rough and broken, these litters have hitherto been of little use. The "Cycle Ambulance" may prove valuable for use on city streets, but evidently it cannot be considered serviceable for rough and muddy country roads.

A recent invention by Mr. Frederic Remington, the artist, is by far the best adaptation of the wheel to the litter that has yet been made. Mr. Remington, in his campaign experiences with the army on the frontier, has had an eye for the needs of the wounded soldier, as well as for picturesque scouts and warriors. The invention, which he calls a "litter-carrier," consists of a single wheel, and of a framework to hold the litter. The wheel is twenty-four inches in diameter, and has a steel rim three inches in width, covered with a rubber band; within the rim is a V-shaped shield of wood, through which the spokes pass. The shield prevents the accumulation of mud or snow on the rim. The frame is made of steel tubing, upon which rest two three-leaved springs, placed twenty-two inches apart, so that the poles of the regulation litter may rest upon them. The litter is fastened to the carrier by a pin which is attached to the lower side of each litter pole, and passes through a hole in the spring, where it is made fast by a cross-pin. Folding legs are let down to hold the carrier firmly in position when the litter is to be put on or taken off. The litter-carrier thus adjusted, with the litter placed upon it, is about thirty inches in height, and could serve on occasion as an operating-table. When the carrier is in motion, the legs fold back, and are secured by a simple device to the litter poles. The wheel is readily detached from the frame, and the whole can then be packed in small compass. The model which I have tested weighs thirty-seven and one-half pounds, but Mr. Remington is confident that the weight can be reduced to about thirty pounds.

The litter-carrier is designed for two bearers, one of whom pulls, while the other pushes; but should one of the bearers become disabled, it can be moved by one man alone. Over even ground the loaded carrier is moved with little effort; over rough ground the labor is not excessive, and the broad tread of the rubber-covered wheel and the elasticity of the steel springs make the patient's bed at least endurable, if not wholly comfortable. In case of necessity the carrier and patient can be lifted over ditches or other obstacles. I have tried the carrier under a variety of circumstances, up and down steep slopes, along side-hills, on unpaved roads and across fields, and find it admirably adapted to its purpose. In one of these tests of the litter-carrier a patient weighing 160 pounds was carried without stopping a distance of one and one-twelfth miles, mostly over uneven meadow land, in twenty-two minutes, and without fatigue to the bearers. Over the same ground and distance the same patient was carried on a hand-litter in forty-six minutes; eleven minutes of this time were spent in necessary rest, and even then the bearers were very tired at the end of the course. For the long distances from the front to the dressing-station, Mr. Remington's litter-carrier promises to be of great value in lightening the labor of the bearers.

FIG. 3.

First-Dressing Station.

At the ambulance-station wounds are carefully examined and redressed if necessary, and operations performed as required. Record is made of every patient, and the wounded are fed and cared for until they can be sent on to the field hospital.

The division or field hospital is established at a distance probably two or three miles from the ambulance-station, sufficiently far in the rear to assure, if possible, its permanency undisturbed by the changing lines of battle. The water-supply and the character of the ground and roads are also factors in determining the site. From the ambulance-station to the division hospital the patients are transported in ambulances or by litter-carrier, and on occasion army wagons or other available vehicles are pressed into this service.

Owing chiefly to faulty organization, the removal of the wounded from the field has hitherto been the least satisfactory work of the army medical service. But conditions have changed, and we are now in position to remedy this defect. Formerly medical men performed their duties subject to the will and conveniences of other departments of the army. Now the medical department has full control of its men and material, enjoys complete autonomy in its own sphere. It has a corps of trained and disciplined men and improved appliances for transportation. As yet, however, a detailed plan for the organization of this force is wanting, and without definite regulations the best results are impossible. To settle the details of organization under the stress of battle requires executive ability which few men possess.

It is held by some authorities that in coming wars it will be impossible to carry away the wounded during the battle, since the bearers would all be killed by the wide and destructive fire of modern arms. Granted that at times this may be so, it does not do away with the need of preparation for the relief of the wounded at the first practical moment. The value of this preparation does not consist wholly in the actual work accomplished, but also in the confidence given the soldier, that, should he fall, he will be taken care of.

The work of the hospital corps will demand not technical skill alone. It will require military discipline, a training which develops courage, endurance, and self-sacrifice, teaches prompt and unquestioning obedience, which, in short, make a soldier. We have now followed the route of the wounded soldier from firing-line to hospital. Though such a journey may never be painless, yet the measure taken to relieve suffering and save life have at least kept pace with the inventions contrived to wound and kill.

CAMP SANITATION AT CHICKAMAUGA PARK, GEORGIA.

To the Editor of the MEDICAL NEWS.

DEAR SIR: THE troops included in the command now stationed at Camp Thomas, Chickamauga Park, Ga., the composition of which has been frequently changed during the last ten days, consist of the 2nd, 7th, 8th, 12th, 16th, and 25th Infantry, and the 1st, 2nd, 3rd, 6th, and 10th Cavalry, with detachments from the Hospital Corps, Quartermaster Department, Commissary Department, and Signal Corps, together with medical officers, headquarters, staff, etc., aggregating about 7000 men. These regiments have been collected from all parts of the country. The 2nd, 16th, 25th Infantry and 10th Cavalry from the high altitude and severe cold of Montana and Idaho; the 7th, 8th, 12th Infantry and part of the 2nd Cavalry, from the similarly environed but warmer regions of Wyoming, Colorado, and Nebraska; the 1st Cavalry from Kansas, Illinois, and Oklahoma; 3rd from Vermont and Missouri, and the 6th from Virginia, Kansas, and Nebraska.

Chickamauga Park, where we are all camped, is a beautiful spot; the ground is rolling with many small hills, and large open spaces, alternating with wooded ground without underbrush. At first sight it would seem to offer an ideal spot for a large encampment, but such is in fact not the case. The soil consists of a few inches of loam, with an underlying bed of dense impervious clay of variable depth, but extending everywhere to the bed-rock. After a rain the ground remains damp and cold even after prolonged exposure to the sun, the water running down to the low ground remains in pools, and is soon converted into a muck by the constant traffic. The climate is very hot during the day, and cold and damp at night. The conditions would indeed seem favorable for the development of colds, rheumatism, tonsillitis, and diarrhea.

The water-supply of the camp is excellent in quality and quantity for drinking purposes, being pumped from artesian wells and from freely flowing springs. There are practically no bathing facilities, the nearest creek being several miles distant, but personal cleanliness is effected as far as possible.

The closest attention is paid to sanitary matters, and thus far with good results. Sinks, suitably sheltered, are dug for each company, and a layer of fresh earth is thrown on the fecal evacuations twice daily. When the contents of the pit are within eighteen inches of the surface it is filled up, marked, and a new one dug. All organic refuse and liquid slops are placed in tight barrels and removed daily by the farmers of the surrounding country. All other refuse is collected in piles and burned. All tents are ditched and drained, and many of the company streets have been filled in with gravel, which soon becomes packed and gives a firm footing. Straw is issued to the men for bedding, and many of them have extemporized platforms to raise them from the damp ground. Tent walls are raised daily, and the floors with straw, blankets, etc., exposed to the sun and air for at least two hours. The food of the men is inspected by a medical officer both before it is cooked and afterward, and all defects immediately brought to the attention of the proper authority; at the same time, every opportunity is taken to impress upon officers and men the purpose and importance of sanitary regulations.

No drugs are administered as prophylactics, none being considered necessary here. There has thus far been little sickness. A few cases of malarial fever among soldiers coming from parts where that disease is endemic,

and a small number of cases of diarrhea, the result probably of a variety of causes, such as the extremes of temperature, errors of diet, and imprudences of various sorts. No diseases have been thus far noted as attributable to changes of climate, though this has been extreme in many cases; but a few mild cases of heat exhaustion have occurred as the result of ordinary drills in unaccustomed heat. A careful inspection of the entire command has been made with a view to vaccinating those who are unprotected. Each regiment in camp has one or more surgeons on duty with it besides a detachment of the Hospital Corps, and a field-hospital equipment, ambulance, etc. Every effort is being made to supply each command with a completely equipped medical department, both as to material and personnel. The exact nature of the organization and of the higher organizations which must be evolved from it will form the subjectof a later communication.

CHARLES F. MASON,
Captain and Assistant Surgeon, United States Army.
CAMP THOMAS, CHICKAMAUGA PARK, GA., May 6, 1898.

MEDICAL PROGRESS.

Pains in the Lower Extremities. — METTENHEIMER (*Zeitschr. für rat. prak. Aerzte*, January 18, 1898) takes up the subject of pains in the lower extremities, and discusses it in a scientific manner. The expression *Schmerzen in die Fuesse*, is familiar to every one who has come into contact with the Polish population in dispensary work. The author says these pains are due to a plethora of the veins in the lower extremity, although they may also occur in other parts of the body. As special causes he mentions an undue amount of standing, or of walking, or the use of wine, especially sour wines, or standing in cold places, or working in a sitting position in cold rooms. In some patients there is not a trace of varicosity to be seen in the veins. Nevertheless, the pains are due to the insufficient circulation of blood in the skin. Such pains are often spoken of as rheumatic, an entirely misleading name. As treatment, are to be mentioned bandages, a horizontal position, rest, avoidance of over-exertion, etc. Unfortunately, it is impossible for most of those who suffer from these pains to comply with such directions. The author says he has obtained good results by cold applications, pouring cold water daily over the affected parts, or if time and opportunity permit, cold baths. Added to this there should be a dry friction of the skin. This should be superficial, and not a deep massage such as one gets from rubbing in a salve. Electricity will also be found to be of service, but the most practical remedy, both on account of its cheapness and its ready application, as above stated, is cold water, followed by dry friction with the hand.

Tuberculosis of the Spleen.—HAYDEN (*Jour. Amer. Med. Assoc.*, April 2, 1898) treated for several weeks a patient with swelling in the splenic region without benefit. In fact, the patient grew steadily worse and the swelling increased in size. An exploratory operation was performed, and a large cyst in the spleen was found and its contents evacuated. These examined microscopically were found to contain pus-corpuscles and tubercle bacilli. Soon after, secondary tuberculosis appeared in the other organs, and the patient died four months after operation. Very few cases of primary splenic tuberculosis have been recorded. The writer believes that had the spleen been removed at the time of the operation secondary tuberculosis would have been avoided, although the great risk attendant upon the removal of this organ inclined him to the opinion that it ought not to be attempted.

To Determine Very Small Effusions into the Knee-Joint.—FISKE (*Med. Record*, March 12, 1898) says that small effusions into the knee-joint are best made out if the patient stands with the knees fully extended and with both hands resting on the anterior surface of the thighs at about their middle. Any fluid present in the joint at once sinks and settles behind the patella, causing it to "float." This position of the patient is one of ease and anterior relaxation. The muscular rigidity often present in ordinary examination of the knee-joint is absent. Care should be taken to strike the patella exactly in its center. Otherwise, one may obtain a deceptive tilting.

THERAPEUTIC NOTES.

Lysol as a Disinfectant.—At its recent annual meeting the Illinois State Board of Health expressed concurrence in the following recommendation made by Dr. John A. Egan, its secretary: Although corrosive sublimate is a cheap and reliable disinfectant, great care must be exercised in its use. All the solutions named are poisonous, and a child might drink sufficiently of No. 3 (1 dram each of corrosive sublimate and muriate of ammonia dissolved in 1 gallon of water) to cause its death. Carbolic-acid solutions are also poisonous, and might be drunk by a child or adult, causing at least injury to the throat. Lysol has none of these objections, being toxic only in large doses, and having a pronounced taste, thus precluding the possibility of it being swallowed by mistake. A two-per-cent. solution of lysol equals a five-per-cent. solution of carbolic acid. This preparation can be used instead of the carbolic acid, in the strength of 2½ ounces to the gallon of water.

A Specific Galactagogue.—Dr. Thos. More-Madden (*International Medical Annual*, 1898) calls attention to an article by Dr. Richard Drews, who states that somatose exercises a specific action upon the mammary gland of nursing women in that it produces an abundant secretion of milk and rapidly removes the disorders of lactation. It is therefore recommended, when the quantity is insufficient, and when at the commencement of lactation the flow seems about to cease. Of course, the integrity of the gland must be perfect, and there must not be present any diseases which contraindicate nursing. The dose is 3 or 4 teaspoonfuls daily, taken in milk, hot bouillon, or cocoa.

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SATURDAY, MAY 14, 1898.

GLOVES FOR ARMY SURGEONS.

IN each surgeon's chest which has gone to the front with the army there has been placed a package containing three pairs of rubber operating-gloves, sterilized, and wrapped in rubber tissue, ready for use. Whether they will prove a valuable part of the armamentarium of the surgeon in his effort to obtain primary union, remains to be seen; at any rate the Surgeon-General has shown himself alive to the advances in his department by thus promptly acting upon the opinions which have recently been expressed in this country and Europe in regard to aseptic operations. Within a short time this subject of operating-gloves has been brought before both the New York Surgical Society and the Surgical Section of the Academy of Medicine. In one paper preference was expressed for rubber gloves—in the other for cotton, or lisle-thread gloves. Both papers excited a vigorous discussion, which turned not so much upon the kind of glove to be worn, as upon the point whether or not gloves should be worn at all. Age is ever conservative, and it was not surprising to find that the majority of the advocates of gloves were young men, while their opponents were almost without exception past forty summers. The arguments were chiefly in favor of gloves. Those who opposed the use of the gloves were only able to say that they considered them clumsy. To this the answer was made that a little practice overcomes this awkward feeling, and the fingers soon gain sufficient dexterity for nearly all operative maneuvers.

The gain for asepsis by the use of gloves is clear and unmistakable. They can be absolutely sterilized, as the skin cannot, and in addition they protect the wound from possible infection from secretions of the sweat-glands of the operator's hands. These facts were brought out in a variety of ways in the meetings mentioned, and one young enthusiast set the standard for the future by declaring that surgical etiquette is no less real than that of good society; and that it is as bad form to put the naked fingers into a wound as it is to pull to pieces a bit of broiled chicken at luncheon with fingers and teeth.

There seems no reason to doubt that in the next few years gloves will become universal in the best operating-rooms—just as in the past few years head-dresses have become common; or, as in the years immediately preceding, gowns gained a general foothold. Whether the gloves will be of thread or rubber, or of some other material, it is too early to predict. Undoubtedly all surgeons who while operating use liquids, for wounds or instruments or sponges, will prefer gloves which are absolutely impervious to moisture. For those who operate by the dry method throughout, thread gloves, at least for extra-abdominal operations, have some decided advantages over rubber—in that they are thinner, and less elastic, and do not sweat the fingers. With them, however, a more complete preliminary scrubbing of the hands is necessary than is the case when rubber gloves are employed. This statement would probably be stoutly contested by the advocates of rubber; but unless human nature is going to change, a congenital inertia and a due regard for his digital epidermis, will, in the end, lead the surgeon who knows he has a germ-proof sterile film of rubber between his fingers and the wound, to omit altogether or greatly to modify the annoying ten minutes of hand-scrubbing which one has to go through with to render his hands even approximately sterile.

As may be seen in the report of the Congress of the German Society of Surgery, which appears in this issue of the MEDICAL NEWS, the German surgeons

are almost unanimous in the opinion that the introduction of gloves into the technic of surgical procedures marks a distinct advance in asepsis.

To the army surgeon rubber gloves will be especially welcomed. His hands are usually rough from a varied occupation and are sterilized with great difficulty, while the conditions of war compel him at times to operate for many hours together, so that oft-repeated scrubbing might well nigh flay his fingers.

To prepare them for use rubber gloves are washed with soap and water, rinsed with mild ammonia, lightly packed with gauze, wrapped in a towel and boiled for fifteen minutes in a one-per-cent. solution of sodium carbonate. Since they are non-absorbant, if they come in contact with no source of infection they must remain sterile throughout the operation. During the operation they may be washed on the hands with a sterile solution as often as necessary.

A ROYAL ROAD TO MEDICAL KNOWLEDGE.

ONE by one time-consecrated aphorisms succumb to the irresistible Admirable Crichtons of our generation. It has been universally accepted that there is no royal road to knowledge; yet a plan of manufacture and commerce in this commodity is now being agitated by certain enthusiasts in the medical profession of this country which claims to negative such acceptation. This consists of an organization to supply medical societies in different parts of the country with "talent," who shall come unto them laden with wisdom which shall be imparted and extracted, even to the complete satiety of those who are hungering and thirsting for such ready-made knowledge. The fathers of this scheme flatter themselves that these occasions will be found so invaluable that every town and county medical society will insist upon having a regular monthly supply. The question of supply is an easy matter, however, as it has been hinted that all the specialists in the large cities will welcome this opportunity to exhibit their wares first hand to the untracked territory from which consultations spring, and that they will hasten to cast their bread upon waters that it may return to them a hundred fold.

We are assured by the press agents of this company that the plan has been tried on various medical societies whose membership is made up of country practitioners and that it has been found a flattering success. A neighboring city seems to have the distinction of supplying, thus far, the "stars" of these buccolic companies, and, judging from the reports, the actors are highly pleased with the success of their one-night stands. If the medical societies do not soon awaken to the fact that they are pursuing an *ignis fatuus*, and if the stars cannot be made to see that they are selling their birthright for a mess of pottage, we may soon discover the dead-fences and the forsaken barns of the country town and suburban village covered with posters and lithographs heralding the coming of the next medical attraction, as plays and circuses are now announced.

Why should reasoning physicians delude themselves that the advent, for an hour or two, into the range of their audition of a man who has given special study to some intricate, and very often laboratory branch of their profession can possibly be of any advantage to them comparable to that which may be obtained by their gathering together in a spirit of mutual betterment to thrash out the truth by a comparison of individual experiences. It is only by such methods that the sinew and marrow of the ideal medical society can be developed. What are medical societies for? Are they for the glorification and lionizing of the individual, or are they arenas to which may be brought the difficult problems in diagnosis, the intricate questions of pathology, the vagaries of therapeutic results, in order that they may be discussed and elucidated by the clinical experiences of many men studying the same diseases amid the same invironments and under similar conditions? No one can honestly say, after having listened to some great star who has indulged in glittering generalities and skipped lightly over a vast subject, within the hour, let us say, that he goes home better fitted to cope with the exigencies of his daily work. On the contrary, it is extremely probable that if a vote were taken to determine the influence of the ordinary medical meeting of county and State societies in maintaining professional tone and keeping up the character of medical work the result would be no uncertain answer in favor of the present system—without stars.

ECHOES AND NEWS.

War Premiums of Insurance Companies. — It is a gratifying circumstance that the various life insurance companies of the country are granting to the holders of their policies without additional premium therefor the privilege of engaging in the military or naval service of their country

for at least one year outside of the limits of the United States.

Patriotism of Medical Men.—Thirty American physicians who were studying medicine in Vienna have left and are now on their way home to enter the army and navy.

Can Sex Be Distinguished in Skulls.—After an examination of more than 1090 skulls, Dr. Paul Bartels announces that he cannot discover there any positive characteristic of sex.

Meetings of the Pennsylvania State Board of Examiners.—The Pennsylvania State Board of Medical Examiners will hold its next examinations in Philadelphia and Pittsburg, June 14th, at 2 P.M. The Secretary is Dr. W. S. Foster of Pittsburg.

Changes in the Department of Charities, New York.—The office of Assistant-Superintendent of the City Hospital has been abolished. Miss Mary S. Gilmore has been appointed Superintendent of the Bellevue Hospital Training School for Nurses, at an annual salary of $1200, in place of Diana C. Kimber, resigned, whose salary was $1800.

A Hospital Ship for the Army of Invasion.—Among the recent purchases of vessels by the Government is the Vigilancia belonging to the Ward line; this vessel will be used as a hospital ship for the army and fully equipped for that purpose. Surgeon-General Sternberg has decided to place on board this ship an X-ray apparatus for the use of the surgeons.

Hotels to Be Utilized as Hospitals.—If the war is prolonged so as to need extensive hospital accommodations, the two hotels at Fort Monroe, the Chamberlin and the Hygeia, will be taken for that purpose. Fort Monroe has been chosen as the best place for the purpose, because of its healthful surroundings, the defences of the garrison there, and the ease with which men can be transferred from ships to the shore.

Fast Train to Denver.—The Rocky Mountain Limited, over the Chicago, Rock Island & Pacific Railroad, left Chicago at 2.30 P.M., May 5th, and reached Denver at 1.30 P.M., May 6th, the distance being covered in twenty-four hours and two minutes. No such record has ever been made before by a regular train between these points. The time on the entire trip averaging 52.3 miles per hour. The fastest time was 84 miles per hour.

A Regiment of Mounted Riflemen to Be Recruited.—Captain Leonard Wood, Assistant Surgeon, has been ordered to proceed forthwith to the following named places, in the order designated, for duty in connection with the recruitment of mounted riflemen to be organized under the recent act of Congress: Guthrie, Oklahoma Territory; Salt Lake City, Utah; Santa Fé, New Mexico; Cheyenne, Wyoming; Phœnix, Arizonia Territory; Boisé City, Idaho; Carson City, Nevada.

The Marine Hospitals Put at the Service of the Army and Navy by Order of President McKinley.—The United States Marine Hospitals are made available for the reception of the sick and wounded of either the United States Army or the United States Navy, upon a written request of the proper military or naval authority, the Marine Hospital Service to be reimbursed the actual cost of maintenance. A number of patients have already been received in the Marine Hospitals at Key West and Mobile.

Physical Requirements of Recruits.—A list has been issued by the War Department regarding the physical proportions for height, weight, and chest measurements. For the infantry and artillery, the height must not be less than 5 feet 4 inches, and weight not less than 120 pounds, nor more than 190 pounds. For the cavalry the height must be not less than 5 feet 4 inches, nor more than 5 feet 10 inches, weight not over 165 pounds. No minimum weight is given for the cavalry, but the chest must be satisfactory.

Herbert Spencer as a Vegetarian.—It appears from a story related by a London correspondent that Mr. Herbert Spencer, who has been credited with vegetarian principles, only adhered to that system of diet for one year. An enthusiastic devotee of the vegetarian school, meeting the philosopher a short time ago, asked him if he still adhered to vegetarianism. "I was a vegetarian for one year," Mr. Spencer rejoined, "but at the end of that time I went over all that I had written during the year and consigned it *in toto* to the fire."

Stamp Tax on Proprietary Medicines.—It has been the general expectation that the price of all articles upon which war tax may be imposed would advance in price to the extent of the tax. The Maltine Co. announces that despite the increasing cost of barley, wheat, oats, cod-liver oil, quinin, and other commodities that enter into the composition of the Maltine preparation, they have decided that they themselves will bear this tax of four cents per bottle which is to be imposed upon their output, and no advance in price will be made.

Dr. Kelsey and the New York Post-Graduate Medical School and Hospital.—The Appellate Division recently reversed an order which granted Professor Charles B. Kelsey a writ of mandamus compelling the Directors of the New York Post-Graduate Medical School and Hospital to rescind a resolution revoking his appointment as a Professor of Surgery, and restoring him to the professorship and all the rights and privileges incident thereto. Justice Barrett wrote the opinion, which held that the By-Laws of the Corporation authorized the Directors to remove a professor at pleasure.

Sanitary Condition of the Camp at Chickamauga Park.—The policing of the grounds is excellent. Rubbish of all kinds is strictly tabooed wherever it is possible to avoid it. The daily details, with their suitable implements, keep the entire camp in almost immaculate condition. The health of the men, as a result of favorable natural conditions, pure air and pure water, supported by the efficient sanitary precautions, leaves nothing to be desired, and enforces many hours of idleness upon the hospital corps.

Ample opportunity for recreation is furnished for the men when not on duty. Baseball is the favorite sport.

Medical Examinations at Camp Townsend, Peekskill, N. Y.—The physique of the New York State militiamen who are being examined for enlistment as volunteers proves to be remarkably good. Only about five per cent. are being rejected. This is in striking contrast to the reports which come from Camp Rogers, State of Washington, in which it is announced that so many are being rejected that the officers declare that they might as well disband their entire commands and go home. This favorable showing for the Eastern recruits is undoubtedly due to the rigid system of gymnastic exercises constantly enforced.

X-ray Apparatus for Field Hospitals.—Professor Reginald A. Fessenden of the Western University of Pennsylvania has just completed a portable X-ray apparatus for use by the surgeons in the field during the war. The apparatus is as large as an unabridged dictionary and will weigh about twenty-five pounds. It is to be operated by a gas-motor of like weight, and the generator will be one of the smallest ever employed in practical work. The apparatus will supply X-rays of sufficient quantity and intensity to enable the surgeons to see through the body, and should provide a valuable adjunct to the equipment of the field hospitals.

Appointments and Promotions in the Surgical Department of the Army.—Colonel Charles R. Greenleaf, Assistant Surgeon-General, recently stationed at San Francisco, has arrived in Washington for duty on the staff of Major-General Miles, as chief surgeon of troops in the field. To be Chief Surgeons, with rank of Lieutenant-Colonel, Majors Benjamin F. Pope, surgeon United States army; Robert M. O'Reilly, surgeon United States army; Alfred C. Girard, surgeon United States army; John Van R. Hoff, surgeon United States army; Louis M. Maus, surgeon United States army; Rush Huidekoper of Pennsylvania. To be Assistant Surgeon-General, with rank of Lieutenant-Colonel, Nicholas Senn of Illinois. The House Committee on Military Affairs has reported favorably the bill authorizing fifteen additional assistant surgeons in the army, ranking as first lieutenants, and as many contract surgeons as the War Department deems necessary.

Obituary.—Dr. Isaac N. Quimby, a well-known physician of Jersey City, died of pneumonia, on the 6th inst., at his home in Jersey City. He was born at Bernardville, N. J. He was a graduate of the Medical Department of the University of New York. He was appointed Surgeon during the Civil War and served with the Army of the Potomac until after the battle of the Wilderness, when he established himself permanently in Jersey City. He was a member of the American Medical Association.—David Wendell Yandell, a distinguished physician and surgeon of Louisville, Ky., died Monday, May 2, after several years illness. He was born September 12, 1826, near Murfreesborough, Tenn., and graduated in medicine from the University of Louisville; he also spent two years in study in Europe, returning to Louisville to practice. He was Professor of Surgery in the University of Louisville in 1859, and a Medical Director in the Confederate Army from 1861 to 1866; he was also President of the American Medical Association in 1871, and became Professor of Surgery in the Indiana Medical College in 1874. In 1870 he established the *American Practitioner*.

CORRESPONDENCE.

OUR PHILADELPHIA LETTER.

[From our Special Correspondent.]

THE CONTROL OF MEDICAL CHARITIES—WILLS' EYE HOSPITAL AND ITS CRITICS—BICYCLE AMBULANCE-CORPS—A FLOOD OF NAUSEATING "LITERATURE"—MEDICO-CHIRURGICAL COLLEGES OF DENTISTRY AND PHARMACY—PROTECTION OF THE WATER-SUPPLY FROM POISONING BY SPANISH AGENTS.

MAY 7, 1898.

THE much-talked of meeting of hospital physicians and managers to consider the subject of the abuse of medical charities, was held at the College of Physicians on May 3d. The majority of the speakers, while entirely agreed as to the urgent need of reforming the abuse and of finding a remedy without loss of time for the present objectionable state of affairs, were by no means agreed as to the best method to be employed for the correction of the trouble. Although numerous plans, some of them seemingly excellent in many ways, were advanced and freely discussed, no definite agreement was reached, and no compromise was effected by which a single plan could be made acceptable to all concerned; it was, therefore, finally agreed to entrust to a committee of five the further investigation of the whole subject, this committee being instructed to formulate a definite line of action, and to arrange for a permanent organization of those interested in the furtherance of the work. At present, the difficulties to be overcome are many and powerful, because of the decided disinclination of many institutions to "fall into line," and to send representatives to participate in the consideration of the subject. The members of the committee appointed are to direct their attention largely toward these institutions, to try to solicit their interest and cooperation, and to ascertain from them, if possible, definite statements of their attitude concerning the present agitation. As soon as this is accomplished, and when the other instructions of the committee have been carried out, another meeting will be called, at which it is hoped the course of the procedure agreed upon by those interested will be announced in exact terms. At the meeting held this week Judge Ashman was the presiding officer, and Willim B. Thompson, Esq., was secretary. Among those who participated in the discussion were Drs. Edward Jackson, Carl Frese, J. V. Shoemaker, J. W. Walk, C. H. Burnett, and W. W. Holmes.

Quite a warfare of criticism is at present being waged against that historic institution, the Will's Eye Hospital, for its innovation in contracting with a single firm of manufacturers of optical instruments for filling the prescriptions issued to dispensary cases at a price barely above cost to patients. Recently the Board of City Trusts,

the governing body of the hospital, became dissatisfied with the manner in which the filling of oculists' prescriptions was conducted, and resolved that it would serve all interests best to have the work done by a single firm to which all the patients of the hospital must go for this purpose. Accordingly they invited bids from manufacturers, with the result that it was decided to award the entire contract to the lowest reputable bidder, which happened, in this case, to be one of the leading and most reliable firms in the city. Under the new rule the patients are furnished with an order for glasses on the firm specified, instead of with a prescription to be filled by any optician to whom they may choose to go; this firm then receives direct from the hospital the prescription for the patient in question, which is filled on receipt of the patient's order. The hospital authorities claim that the benefits of the new plan are a saving of expense to the patient, and the facility with which defects in the filling of prescription may be traced and remedied. The critics of the system cry "pauperization of the community," and intimate favoritism along commercial lines. Meanwhile the experiment must work itself out, and time alone can indicate the wisdom or the mistake of the innovation.

Two offers have been recently made to the city authorities to furnish bicycle ambulance-corps for park and for street service. The first offer comes from the League of American Wheelmen's Emergency Bicycle Corps, which has offered its services to the Fairmount Park Commissioners during the season, free of expense for the proposed ambulance patrol. This corps consists of twenty uniformed surgeons, mounted on wheels, and two bicycle ambulances, each ridden by four persons. The second offer comes from the Emergency Bicycle Corps of the Department of Public Safety, consisting of sixty-five physicians, each of whom is in direct connection with the central police bureau of the city. A small metal red cross is to be attached to the members' wheel during the day, and a small transparent red cross in front of the lens of the lamp at night will enable the public to recognize the corps at all times. It is said that the Department of Public Safety will accept both offers, and that the service will be inaugurated before the end of the present month.

Philadelphia has been literally flooded of late with patent-medicine booklets from a New England firm, setting forth in glowing terms the merits of its nostrum, which, according to its manufacturers, eradicates every feminine ill, from uterine fibroids to acne. To remark that these advertisements are vile and obscene does not begin to express the nauseating nature of their contents, which are of the stamp which a profound sexual pervert would devour with glee and appreciation; and to state that these booklets find a widespead circulation conveys but a faint idea of the freedom with which they are distributed, by mail, by carrier from door to door, and by personal distribution at the street corners. The front paper-cover of the advertisement bears a lithographic illustration of the most innocent nature imaginable, and gives no hint of the contents, which are filled with matter utterly unfit for promiscuous or any other kind of reading, either among the old or the young. Postmaster Hicks, who has been asked to investigate the matter with a view to suppressing the circulation of the booklets, has looked into the case, and has expressed himself as entirely unable to exclude the matter from the mail, for the reason that "it has been decided that the matter referred to comes within the classification of legitimate medical advertising!"

After months of litigation, in which a prominent dental college of this city figured against the Medico-Chirurgical College, the latter institution has been granted by the courts an amendment to its charter permitting it to grant degrees in dental surgery and in pharmacy, in addition to the work of its medical school. The plans for the establishment of the two new schools have already been announced in these columns.

A wholesale spirit of excessive caution seems to have taken possession of our city legislators in prompting them to prepare an ordinance providing for the appointment of fifty special guards to protect the several city water reservoirs against any possible attempts on the part of Spanish agents to poison the water-supply of the city. Unlike New York City, which receives its entire water-supply from a single source through an enormous aqueduct which might be polluted at any point along its course with immense damage to the entire city, Philadelphia receives its water from several stations, each serving a separate district; so that any attempt at pollution could be at once traced with ease, and the section of the city supplied from the polluted storage basin cut off until danger is past.

The total number of deaths occurring in this city for the week ending May 7th numbered 445, a decrease of 25 from last week, and an increase of 27 over the corresponding period of last year. There were 207 new cases of contagious diseases reported, as follows: diphtheria, 86 cases, with 22 deaths; scarlet fever, 61 cases, with 7 deaths; and enteric fever, 60 cases, with 9 deaths.

OUR WIESBADEN LETTER.

[From our Special Correspondent.]

A GERMAN MEDICAL CONGRESS AND ITS SERIOUSNESS—THE DISPOSAL OF "BORES"—SOME WATERING-PLACES AND THEIR WATERS—AN OLD FOUNDATION AND MODERN SCIENTIFIC WORK AT FRANKFORT.

WIESBADEN, April 30, 1898.

A GERMAN medical congress is a very business like affair. At least here at Wiesbaden there are very few distractions from the work of the congress itself. One of the evenings is given up to a dinner of course, but beyond that there are no formal public entertainments. There is a café in which a number of the doctors meet during the midday intermission to take what in Rhineland they have specially named "Frühschoppen." (A social morning glass is the nearest translation of it I can find.) The term is a favorite one with the students' guilds; the custom also a favorite. In the evenings there is a special rendezvous for a social glass, but to neither of these places do more than a very small minority of the doctors go.

Sessions begin rather promptly at 9.15 A.M., and last till nearly 1 P.M., though 12 o'clock is announced for the end of the session. They begin again at 3 P.M., sharp,

and continue until about 6 P.M. The morning session, particularly when discussions are announced, is very well attended. As in medical societies generally over here, a great deal of interest is taken. German medical men are, I think, less considerate of the feelings of the reader of a paper than we are. When, for instance, the perennial bore, the special *bête noir* of medical societies, the man who has nothing to say and takes twenty minutes in which to proclaim the fact, bobs up, he is apt to feel in the hum of conversation that very soon begins that he might as well be talking to the stars, or that his voice might be the music of the spheres, so utterly oblivious seems his audience of it.

On the other hand when really good things are said, be it only a good bit of comparative literary abstraction, that makes clear the present position of a subject, there follows a series of most encouraging bravos. The other bore, the man who thinks he has discovered a new symptom or a new therapeutic method in some long since exploited expedient, is very apt to be laughed out of countenance at once. During one of the sessions a young man attempted to demonstrate a new symptom of early pancreatic diabetes, in a tenderness about the tail of the pancreas, to be felt in the eighth intercostal space in the anterior axillary line on the left; "*et risu soloebantur tabule; sic nos servabit Apollo.*"

The congress is over now and the members have gone, that is all except a few, who remain to take the waters for awhile. They are, as a rule, the older ones whose faith has never been rudely disturbed by too close observation of the therapeutic effect of a little hot salt water, or whose credulity has returned with advancing years, the later stages of evolution corresponding to the earlier stages of evolution, a harking back to the time when tales were true and facts unquestioned.

For the wonderful thing about all this region around here and in the Rhineland generally, is that a little common salt water, or carbonated water, comes bubbling up out of the bowels of the earth, and straightway it is invested with marvelous powers, and people afflicted with all the ills that flesh is heir to, and a few others besides, come flocking to it from all over, and, stranger than all, go away cured, or at least wonderfully relieved and benefited.

One has a chance to study here at Wiesbaden and at the recently more fashionable Homberg, not far from Frankfort-am-Main, the secret of the success of the cure. That it is due to the waters themselves with their plenitude of common salt, and minimal amounts of calcium and lithium salts, and traces of iron and even arsenic, scarcely any one now will affirm. It is true there are those like Professor Liebreich in Berlin, who insist that our chemical analysis of the constituents of these springs is anything but final. Even in the last few years it has been found that the waters of Wiesbaden contain much more lithium than was formerly thought, yet the laboratory of the famous analytic chemist, Fresenius, is in Wiesbaden, and its reputation has been fully maintained by his son and successor. Then the discovery within the last few years of argon in the air, has shown how defective are present chemic methods for the analysis of the most familiar materials, even when the very best and most exact scientific chemic means are used. Finally, even if we did know the exact chemic constituents, it would be but coarsely; of their relations one to another in certain physic and chemic combinations and the effects on complicated human metabolism of a series of such unstable compounds, we know next to nothing.

But all this is the argument of a man who holds a brief for pharmacology and will not see lightly slip from the realm of drugs into that of the so-called natural therapeutic methods, the number of ailments which yearly are benefited at watering-places. The practitioners themselves at the watering-places have been more frank in their acknowledgement of the benefit to be derived from physical methods, and so there are in the town and neighborhood hydrotherapic, vegetarian, fruit, grape, gymnastic, massage, and electrotherapic cures, one of which at least, is associated in nearly all cases with the taking of the waters. The baths include every variety imaginable, hot and cold, steam and compressed air, dry and moist hot air, mineral, pine, and aerated baths. Twenty thousand pounds of grapes are consumed in a year for the grape cure. Of course this condition easily glides into the realm of charlatanism, but in this respect the various establishments are well managed and seem to be perfectly under control.

The régime required while taking the waters is itself the best therapeutic measure in Wiesbaden. They are drunk first in the early morning between 6 and 8 A.M., during which hours the band plays at the spring, and again in the afternoon between 3 and 5 P.M., so that the temptation to those of sluggish circulation to oversleep, is removed at the two periods of the day when it is most alluring. A dietary is always insisted on during "the cure" and this is not hard to kept up as all around one at the hotels and pensions are people with restricted diet. Then the walks around the town are most pleasant, gentle mountain walks lead through beautiful grounds and those never before given to walking much are tempted out. When to those factors are added the fact that it is fashionable to take the waters, that so many have been benefited and so much written about the curative properties of Wiesbaden's waters—printers' ink is an important constituent of many a proprietary preparation, that does not reveal itself to the most exact chemical analysis—then it is easy to understand how a course of the waters does good. It must be good—the wonderful suggestive element of all therapeutics—and there is an end of it.

Of course at Homberg there is the additional factor that Royalty goes there every year; the Emperor and Empress of Germany, the Czar and Czarina of Russia, the King and Queen of Italy, and Albert Edward, Prince of Wales, to visit his sister the Dowager Empress of Germany, who has a house there every year during the season. When to these are added the Knights and Grand Dukelings of the little German monarchies, the suggestive therapeutic influence of the springs at Homberg can be confidently looked to, to be almost fabulously effective. It is to be remembered however that they really do do good, however we may analyze their effect, and after all at the

end of the century it is coming to be very generally admitted, even here in Germany, that a doctor's main purpose is to benefit his patient even if the means employed are not always those that admit of exact scientific explanation, or the definition of their indications remains persistently obscure.

Progress in scientific medicine is cared for in the Rhineland at the two universities, Bonn and Heidelberg. Frankfort has no university but as the result of an old foundation, she has a central point around which science is cultivated quite as effectively and successfully as if there really were a university.

In the middle of the last century a Dr. Senckenberg of Frankfort, who was interested in anatomy and lectured on the subject with dissections to some kindred spirits in a small amphitheater in his garden just inside the city walls, left the grounds and building together with his private hospital not far away and an endowment for their support, to the city for the cultivation of science, especially anatomy and botany.

The trust has been excellently administered and now the grounds are very valuable, not far from the center of the town, and the endowment income considerable. Very commendable, however, has been the liberal way in which the board of trustees have interpreted the clause of deed of gift as to the cultivation of science. All the scientific societies of the city have been given a free perpetual lease of ground for their buildings and the trust has aided them in their establishment where possible. Now the library of the Senckerberg institute is the combination of the libraries of all these societies in a special building. The Anatomical Institute has ever been the special charge of the trust of course. Its director at present is Professor Weigert, and here of late years have been elaborated his staining methods for details of anatomical work. Here Edinger has been doing his recent work on the etiology of tabes, and for years on the minute anatomy of the nervous system. Here nearly always are to be found a certain number of Americans, for where there is a good thing here in Europe, even though it may be but little known outside of its immediate neighborhood, there you will find American medical students.

And so the old Doctor of the first half of the Eighteenth Century lives on in the work of the end of the Nineteenth, when the anatomical studies he was so much interested in have taken a direction of which he never could have dreamed, but fortunately which no shortsightedness of his, from too narrow restrictions in his bequest, was allowed to hinder.

TRANSACTIONS OF FOREIGN SOCIETIES.

Paris.

ETIOLOGY OF CIRRHOSIS — CONGENITAL GOITER CURED—X-RAYS AND THE BLIND—UNUSUAL PERFORATION OF SMALL INTESTINE — SUBPHRENIC ABSCESS LOCATED WITH DIFFICULTY—POST-OPERATIVE PSYCHOSES GROSSLY EXAGGERATED—ERYSIPELAS SUCCESSFULLY TREATED WITH IODOLE—APYRETIC SCARLET FEVER.

AT the Academy of Medicine, March 29th, HAYEN said that in his experience one could establish a parallelism between the increase in the consumption of liquors, particularly of absinthe, and the decrease of cases of *cirrhosis* of atrophic character. This fact is in accord with the theory that wine-drinkers, being usually hypopeptic, are exposed to atropic cirrhosis, while those who drink strong alcoholic beverages are almost always hyperpeptic, and are, therefore, prone to develop a hypertrophic cirrhosis. The speaker said that the action of the sulphate of potash in the production of cirrhosis scarcely merited serious consideration.

At the session of April 12th, GASSICOURT reported a case of *congenital goiter* of an infant of three months cured by thyroid fed to its mother, she herself being also goitrous. The dried equivalent of about 20 grains of thyroid gland was given the mother daily in divided doses for about five days. The treatment was then interrupted for four or five days, and later it was resumed as stated above. No symptom of thyroidism appeared as a result of this medication either in mother or child. At the end of six weeks of treatment the goiter of the mother had become somewhat smaller, while that of the child was more profoundly benefited, and at the end of four months it had entirely disappeared.

At the Academy of Sciences, March 21st, DE COURMELLES communicated the interesting fact that *certain blind persons can distinguish the X-rays*, although they must have at least a slight perception of ordinary rays of light in order to do so. A test was made of 240 young blind scholars, of whom 36 were at once eliminated, as they had partial vision. Of the 204 considered suitable for experiment, 81 had absolutely no perception of light. No one of these perceived at all any one of the three kinds of electroluminous rays produced by Crookes' tubes. Among those able to recognize in some faint degree the nature of light, there were nine who perceived the fluorescent and cathode X-ray, while others less delicate were unable to recognize the X-ray, although perceiving the other rays of the tubes. The retina of the blind eye seems, therefore, to play to a certain extent the rôle of a photographic plate when submitted to the X-ray. This property seems to be lacking in the normal eye.

At the session of the Surgical Society, March 16th, KIRMISSON reported that he had operated upon a boy aged eight years for what was supposed to be an attack of appendicitis. There proved to be, however, nothing wrong with the appendix, but the abdomen contained blood and purulent matter from a *perforation in the small intestine*, at about its middle. The opening was situated close to the mesenteric border, and was sutured in the usual manner. There was a discharge of fecal matter for some days, and then the patient entirely recovered. No explanation as to the origin of the perforation was offered.

MONOD, at the meeting, March 23d, said that he had operated upon two cases with similar symptoms. One of them died, and the perforation which had not been discovered at the operation, was found to be situated in the small intestine, close to the cecal end. The other patient after a long purulent discharge recovered, so that the

site of the perforation of the intestine, if such existed, was not located. It is certain that a number of ulcerations of the small intestine occur, besides those due to tuberculosis and typhoid fever. Potain admits that ulcers similar to those of the duodenum may be found in other portions of the small intestine, and Letulle describes intestinal ulcerations occurring in connection with uremia. In default of any other cause, it is necessary to ascribe them to some traumatism.

PICQUE was called to see a patient who had been ill for three months with what was supposed to be purulent pleurisy, although two punctures had been negative in result, and the signs of empyema were absent. An intrahepatic abscess was diagnosticated, and a transpleural incision was made. Portions of the ninth and tenth ribs were resected. The pleural cavity was free, and two punctures of the liver failed to locate the trouble. Finally a small *subdiaphragmatic abscess* was found, which, as proved by the microscopic examination, originated in the lung, and had made its way through the diaphragm.

PICQUE said, at a previous meeting of this society, that *post-operative psychoses* were often ascribed to the operations which preceded them, especially if these were upon the genital organs. The facts in this connection have been grossly exaggerated, for in many instances it is true that the patients have either been insane before or that they have inherited an abnormal nervous state. Thus, if an ovariotomy has been performed in an interval of lucidity after several periods of confinement in an insane hospital, a further attack of the mental trouble is almost invariably blamed upon the surgical interference.

WALTHER emphasized the importance in all cases suspected of insane tendencies of a most exact record of the previous and present mental condition of the patient.

RICHELOT thought that some of the cases of post-operative psychosis were due to an association of ideas with the parts operated upon in persons already insane or disposed toward mental derangement. In other instances there was absolutely no demonstrable connection between the operation and the succeeding mental state. In the eleven cases of post-operative psychosis which had come under his notice the operative act could not be said to have created *de novo* the insanity in a single instance. Sometimes an operation is followed by temporary hysterical trouble, but he doubted whether that was more likely to be true of pelvic operations than of those in other situations.

REVNIER, at the session of March 30th, expressed himself in accord with the previous speakers, and again urged the desirability of an exact mental diagnosis before attempting any surgical operation. In these persons we are likely to have psychoses after operation; there is a disproportion between the amount of pain complained of, and the lesion which produces it.

SEGOND said that a careful study of the subject had forced him to the conclusion that the psychoses spoken of as post-operative, were in reality pre-operative. It is also of interest to notice that a disordered mind is sometimes cured by an operation, as was the case in a woman from whom he had removed both ovaries for cystic disease.

At the Therapeutic Society, March 23d, LOBIT said that he had obtained excellent results in the treatment of erysipelas and lymphangitis by the use of a ten-per-cent. solution of iodoform and, even better, by iodol in collodium. In twenty-five cases of erysipelas a cure had resulted from this method of treatment in three or four days. The presence in the urine of iodin, shows that the drug is absorbed, the absorption being favored apparently by the presence of the collodium. These applications are not at all painful, on the contrary, they often give an immediate relief.

At the Medical Society of the Hospitals, April 1st, RENON communicated an observation which he had made in connection with scarlet fever, in a patient whose temperature did not go above 37.4° C. (99.5° F.). There was no doubt as to the diagnosis, however, and scarlatiniform erythema of toxic or infectious origin could be absolutely excluded. In this as in similar cases there was a dissociation between the pulse-rate and the temperature. The patient had no complications and recovered perfectly.

LEMOINE said that the fact of an apyretic scarlet fever was to-day established without a doubt. The gravest results may follow in these cases, just because the physician is thrown off his guard by the absence of fever, and omits the customary precautions. He referred to the nephritis in the patient himself, and to the dissemination of the disease among his associates.

SOCIETY PROCEEDINGS.

THE SIXTEENTH ANNUAL GERMAN CONGRESS FOR INTERNAL MEDICINE.

Held at Wiesbaden, Germany, April 13 to 17, 1898.

[From our Special Correspondent.]

THE Sixteenth Annual German Congress for Internal Medicine was formally opened by its President, Professor Moritz Schmidt, the distinguished laryngologist of Frankfort, on Wednesday, April 13th and closed on Saturday, April 17th. Some idea of the interest taken in it in Germany may be gathered from the fact that over four hundred German doctors, including most of the distinguished professors of internal medicine at the various German universities, took part in its proceedings.

PROFESSOR VON ZEIMSSEN of Munich, after the president's address of welcome, read a paper, prepared by special invitation, upon

CLINICAL INSTRUCTION IN MEDICINE.

He is of the opinion that the present teaching of medicine needs improvement in many directions, but especially in the *technical clinical training* of the young physician. For that as a *preliminary condition* there is needed (1) a *lengthening* of the medical course to ten semesters, five years (it is now nine semesters). (2) practical laboratory work in chemistry, anatomy, physiology, pathologic anatomy, and pharmacology. (3) fundamental lectures covering the whole ground of special pathology and therapy.

For the *practical technical* training itself there is required: (1) practical courses in diagnosis, not only physical diagnosis so-called, but microscopic, chemic, bacterioscopic, neuro-electro-diagnosis, and rhinolaryngoscopic; (2) Systematic practice in the actual employment of the therapeutic methods, dietetics, hydro- and balneotherapy, mechanotherapy, electrotherapy, inhalation and climatotherapy.

For the clinical training, service in a dispensary for a given time under proper direction till the student has acquired such efficiency that the care of patients is practically in his hands is needed.

Finally, to complete and round up his practical clinical training, the student should have a year, or at least a half year of actual hospital service, where as an assistant he would have to assume personal responsibilities for his patients. This hospital experience should come after the examinations, as otherwise inevitably the thought of examinations to come would lead him to pay special attention, not to what he considered valuable for practice, but what would be liable to be asked in examination.

PROFESSOR VON JAKSCH was the other referee on

MEDICAL EDUCATION.

He also demanded a lengthening of the course. It is now ten semesters long in Austria and he proposes to make it twelve semesters (six years). The extra year he would take away from the nine-years' course in the gymnasia and would devote it to a preparatory course for medicine at the university. This year would be devoted to zoology, botany, minerology, and geology. This thorough grounding of the medical student in the natural sciences he believes absolutely needed. Practical medicine would be supplemented by courses, during this year, in photography, Röntgen skiagraphy, and the care of electric apparatus.

As to the improvement of present teaching he would secure it by modifications of the present medical course, so that clinical medicine and its scientific foundations, would be the principal study up to graduation. The student should go to specialists only to learn where these specialties touched upon general medicine. No details of specialization should be admitted into the course. For specialists he would institute an extra year, during which, in a dispensary, or under a specialist's care, they should learn the operative technic and appropriate diagnostic methods of their specialty, only such as had had such training being permitted (as is customary in Europe) to assume the title specialist.

Von Jaksch thinks that while von Zeimssen's proposal to have a complete series of lectures on the whole subject of special pathology and therapy, is the expression of an absolute need, yet these lectures must not be purely didactic. Even Billroth found that his didactic lectures would not draw students enough to make it worth his while to continue them. The day for didactic lectures has gone by. The substance of them must now find a place in the regular clinical lectures, which must be so varied as to introduce the various subjects. The same opinion as to purely didactic lectures was expressed in the discussion of the question and seemed to be the general opinion.

DR. MENDELSOHN of Berlin, at the afternoon session, spoke of the

THERAPEUTIC USES OF EXTREMELY HIGH TEMPERATURES.

He, later in the week, demonstrated Tallerman's apparatus for the treatment of chronic joint affections by the inclosure of the affected limb in an air-tight chamber, the air of which is heated to 140° to 180° F. The method attracted a great deal of attention.

DR. ROSIN of Berlin, treated of

THE GOOD TO BE DERIVED FROM HOT BATHS IN CHLOROSIS.

One of the most promising recent advances in the treatment of obstinate cases of chlorosis is diaphoresis. Better than the dry, hot-air baths for this condition are the hot-water baths. The idea is an adoption of a Japanese custom. The Japanese, when very tired, get into a hot bath up to 45° C. (110° to 115° F.) which proves very refreshing. Chlorotics are persistently tired. Their muscles are easily exhausted because badly supplied with nutritive material. A characteristic symptom that Dr. Rosin finds in most of his chlorotics, and which makes them come complaining of something the matter with their lungs, is pain between the shoulder-blades. The erector spinæ muscles suffer from the act of keeping the patient erect. Slight pinching of the muscles or tapping of them gives pain. The reflex action of the hot baths causes more blood to be brought to the muscles and relieves this muscular discomfort. The removal of water from the hydremic blood by diaphoresis, reacts on the nutrition of all the tissues and the blood-making organs take up their functions once more. A bath at 32° R. (105° F.) with a wet towel wrapped around the head, though Dr. Rosin has seen no inconvenience result when this precaution was neglected, is given for one-half to three-quarters of an hour. This causes plentiful perspiration during the bath. It is followed by a cold douche to prevent further perspiration which would be exhausting. A bath is given three times a week for three to four weeks.

DR. DETERMANN of St. Bastien demonstrated the

DIAGNOSTIC SIGNIFICANCE OF BLOOD-PLAQUES.

They are not pathognomonic of any particular disease. Their presence is an index of the isotonicity of the blood, of the lack of vital resistance of red blood-corpuscles to external influences. He demonstrated a series of blood preparations showing red cells in the process of disintegration, or at least of constricting off a portion of their protoplasm. This he considers the origin of blood-plaques. Their presence in any considerable number then, is indicative of a lowered state of vitality in the red blood-cells and so is of diagnostic significance, often before any other morphologic change can be noticed in the blood.

DR. ENGEL of Berlin demonstrated preparations of the

NUCLEATED RED BLOOD-CELL OF A SPECIAL KIND.

He had found this in fatal pernicious anemia cases. It

is a large, nucleated, red cell, differentiated from megaloblasts by its different reaction to the tri-acid stain. He has found the same cell in human embryos of three to six months and in the embryos of rats of eight to twelve days. He suggests for it, owing to its embryologic connections, the name metrocyte (mother cell).

It is another step, Dr. Engel thinks, in the substantiation of Ehrlich's theory, that genuine pernicious anemia is a thorough reversion to the embryonic state of the blood-making organs. The finding of this red cell makes the prognosis of the case extremely unfavorable and decides the question that it is not a severe secondary anemia which must be dealt with, but a true progressive pernicious anemia.

PROFESSOR LEO of Bonn read by invitation a paper upon

THE PRESENT-DAY TREATMENT OF DIABETES MELLITUS.

As regards prophylaxis he detailed some of his own recent experiments, in which he has been able to produce mellituria artificially in dogs by feeding them a ten-per-cent. solution of sugar, in a state of fermentation. It was not due to the ferments present, since it occurred also when the liquid had been previously boiled. Fermented liquors such as beer, he thinks, may be of some etiologic importance in the production of diabetes. Not that they are actual causes, otherwise notably more men than women would become diabetic, which is not the case. In people with a nervous or diabetic heredity, or in very stout people whose faculty for sugar metabolism is distinctly less than that of normal individuals, he thinks the prophylaxis of diabetes includes especially abstention from beer and fermented liquors generally.

Professor Leo is of the opinion too that the metabolic faculty for sugar when lessened may be restored by absolute physiologic rest for a time. All carbohydrates cannot be kept out of the food at all times, but even in the lighter forms of diabetes he requires his patients to pass three to four weeks, three to four times each year, on an absolute diet, from which all carbohydrates are excluded. While bread and the food stuffs rich in carbohydrates must be forbidden, he does not believe, as do Cantani and others of the Italian school, that all vegetables should be forbidden ordinarily. Some of them, as the green vegetables, contain comparatively small quantities of the carbohydrates, while it is probable that they also contain, as Naunyn thinks, certain salts that are absolutely necessary for the human economy.

MINKOWSKI of Strassburg, in the discussion of the subject, reported that in dogs rendered diabetic by the removal of the pancreas, he had found that the exhibition of pancreas had done good. Von Leube has been trying this clinically with some encouraging results, but with insufficient experience as yet to speak definitely of the value of this mode of treatment.

PROFESSOR VON JAKSCH thinks that, like fever some years ago, the importance of decreasing the sugar in the urine is overestimated. Every one a few years ago was bringing down his patients' temperatures with antipyretics, and congratulating himself on his success just inasmuch as he succeeded in keeping his patients' temperature down almost to normal in the course of an infectious fever. No one thinks of doing any such thing now, and it is very possible that we shall have after a few years something of the same feeling with regard to our present attitude towards the all-important problem of rendering the urine free from sugar in diabetes. It is not the excretion of the sugar in the urine that is so serious, but it is that Nature, finding no use for it, treats it as a useless substance, and eliminates it. We are not improving matters by giving her no further sugar to eliminate. There will be no glycosuria, but the nutrition will suffer. What we must do is find some form of sugar that Nature will use, though she has lost the faculty of making use of grape sugar. Professor von Jaksch himself has had some very encouraging results with carbohydrates of different molecular constitution from ordinary sugar. Arabinose-methyl pentose has been the most satisfactory so far. It may be obtained rather cheaply, and is very well borne by the system when other sugar is immediately excreted.

Practically, all the disputants were agreed that *saccharin* was not the merely indifferent sweetening material that it has been represented to be. Dr. Bornstein found that it seriously disturbed the digestion, a very serious result in diabetics, on whose good digestion everything as regards prognosis depends. Boas had found it useful *as a drug* in abnormal fermentative processes in the intestine. Professor von Jaksch was very much opposed to its use, and was glad to have Boas speak directly of it as a drug. Its inhibitory action on abnormal fermentation had often extended itself to normal fermentative processes, on which digestion depends. He had seen not a little gastro-intestinal disturbance which he could attribute only to its use.

The question of the effect of *subcutaneous sugar injection as a means of nutrition* in diabetes remains an open one. Gumpert of Jena has tried it, and with some encouraging results, but the inconveniences are sometimes great. Professor von Leube has tried it, but has given it up because the injections are painful, and it is impossible to avoid infiltrations, and at times suppuration at the point of injection. In Leyden's clinic the results have been somewhat the same, but their experiments are not concluded.

As to subcutaneous injections of nutritive material in general, olive oil is in use for the purpose at a number of clinics, and is giving very good satisfaction. Professor von Leube considers that it is beyond its experimental stage now, and is to be regarded as an acknowledged adjunct to therapy. The importance of albuminuria in diabetic cases and its frequency was brought out by Dr. Grube of Neuenahr. Between thirty-five and forty per cent. of all diabetics have albumin in their urine. In most of these cases it is merely a functional kidney disturbance, due to the excessive sugar secretion, but this functional disturbance may easily go on to degeneration, the tubules may show signs of glycogenic degeneration, and finally chronic parenchymatous, or more rarely interstitial nephritis may develop. The necessity for prophylaxis in the matter by having the food

of diabetics such as is liable to cause least kidney irritation was pointed out.

PROFESSOR MINKOWSKI reported the discovery in the urine of dogs fed upon thymus glands of,

A HITHERTO UNDESCRIBED NITROGENOUS SUBSTANCE.

This new substance resembles in many ways uric acid, and its discoverer suggests the name urotic acid. It occurs in dog's urine fed on calf's thymus in twenty times the amount in which uric acid occurs. Professor Minkowski regards it as an incomplete stage of the evolution of uric acid in the system and considers that further study of it may throw light on the processes by which uric acid is produced in the organism, which is as yet an interesting mystery.

DR. EDINGER began Thursday afternoon's session very attractively reading a paper upon

EXPERIMENTALLY PRODUCED DEGENERATIONS OF THE POSTERIOR COLUMNS.

These resemble the lesions of tabes. Rats that had been made anemic were compelled to overexert themselves in a tread-mill run by a water-motor. After forty-eight hours of work the degenerations exhibited had been produced. Not the whole of the posterior columns are degenerated *en bloc*, but a large number of the fibers. The method of staining is that of Marchi. Beside these specimens were placed the cords of animals in whom anemia alone had been at work and a striking difference was evident.

Edinger considers that this makes clear the etiology of tabes. It is a degeneration of the sensitive sensory nerve-fibers from overexertion, when their vital resistance has been lowered by some general systemic condition, be it anemia, toxic influences, or attenuated syphilis. The much debated question as to where the degeneration begins, becomes then of secondary importance. At different times the resistance in the various parts of the nerve may vary, and so the degeneration need not necessarily begin always at the same point.

For prophylaxis and treatment Edinger considers these observations of the greatest practical importance. Syphilitics, anemic people, and those in a run-down condition, must be warned of the serious risk of overexertion, or of exposure to cold for a long time, etc. Those in the preataxic stage of the disease must be warned about the danger of making the symptoms develop more rapidly than they otherwise would if they are indiscreet in the amount of physical exertion undertaken. The movement therapy of tabes must be carried out with the greatest regard to not overfatiguing the patient.

PROFESSOR PETRUSCHKY demonstrated preparations of

STREPTOTHRIX HOMINIS.

He has now found this for the second time under circumstances which make him certain that it is pathogenic for the human race. He considers that it is the microbic cause of an affection which the common people in Dantzig call malaria, but in which Laveran's plasmodium is not found. This disease is characterized by more respiratory symptoms than are usual in ordinary malaria.

PROFESSOR VON ZIEMSSEN has observed the same parasite in the sputum of certain pulmonary cases, where tuberculosis was suspected but no tubercle bacilli found. He too considers it pathogenic.

DR. SCHOTT of Nauheim demonstrated by Röntgen skiagrams, that the dilatation of the heart, which accompanies disturbed compensation in ordinary valvular heart lesions, recedes under the use of properly graduated exercises with resistance. That the heart occupies less space in the thorax than before Professor von Ziemssen of Munich had demonstrated a series of Röntgen skiagrams of various thoracic conditions Dr. Schott thought every one must admit. The results shown by the Röntgen method are only the same as those which careful percussion had demonstrated beforehand.

PROFESSORS MULLER of Marburg and BRIEGER of Berlin read specially prepared papers Friday morning on

AUTO-INTOXICATION AND INTESTINAL ANTISEPSIS.

Both agree that auto-intoxication is the result of chemical absorption, not of bacterial invasion, though this is the teaching of some prominent French clinicians. Except where there are coarse lesions of the mucous membranes, the intestinal bacteria cannot penetrate the intestinal walls and enter the circulation. The ordinary saprophytic bacteria of the intestine play no important rôle in the production of the toxins, which are the result of chemical dissociations, when the intestinal contents stagnate.

In the urotoxic coefficient as an index of the toxins in the circulation, they have no confidence. Where so much liquid has to be injected into animals the isotonicity of the blood is disturbed and the results are absolutely of no value despite the faith of the Italians and French in the method. The toxins are excreted in the urine, and the only sure way to decide their presence and amount is careful analysis of the urine.

PROFESSOR EWALD demonstrated a new amido-toxin that he had found in the urine in a case of acute intestinal auto-intoxication. As to intestinal antisepsis it is an illusion. The best way to treat acute intestinal autointoxication is by a purgative. If the absorption seems to take place from the stomach, then this should be washed out.

BOAS thought that enough attention has not been paid to the urine in these cases of autointoxication. He has found it in a number of cases reduced as low as 300-400 c.cm. (20–27 ounces) in twenty-four hours. He considers prompt diuresis always indicated and think it fortunate that the best intestinal antiseptic (calomel) is also a good diuretic.

PROFESSOR MATTHES of Jena called attention to the fact that the intestinal contents instead of being uniformly alkaline, as stated by the text-books, is really amphoteric. To litmus and other reagents it gives an alkaline reaction, but is acid to still other reagents. This peculiarity of reaction is due to the presence of certain salts, especially the phosphates, which are taken with the food.

DR. JACOB of Berlin encouraged by the success of the Quincke lumbar puncture as a means of diagnosis and

regretting that the hopes of its inventor, that it would be of therapeutic value, have not been fulfilled, has been trying to widen its use in therapeutics by the injection of medicaments into the subdural space, after the evacuation of some of the cerebrospinal fluid. Animals stand such injections very well and where they have been tried in severe cases in men, they have caused no untoward symptoms. Potassium iodid injected thus is eliminated in the urine in fifteen hours. Jacob considers that the method may be of great practical value in acute syphilitic processes in the cord or brain where it is important to get the immediate action of specific remedies in order to avoid lasting injury of delicate nervous structures.

DR. VAN NIESSEN presented a demonstration of

BACTERIA IN SYPHILITIC LESIONS.

In primary sores, in the epiphyses of children with hereditary syphilis, and in the blood of tertiary syphilitics, he has found various micro-organisms. These include especially diplococci, staphylococci, and streptococci. He considers that the bacterial cause of syphilis is not unique, but that its various types are due to mixed infection. His microbes take the ordinary stains, notably, carbolfuchsin, and have undobtedly been seen hundreds of times before by previous observers, who have considered that they had to do with a chance infection, or with a faulty technic. The recent publication of Van Niessen's paper by Virchow in his *Archives*, and his call to St. Petersburg, as was noted some time ago, to work on syphilis in the Institute of Experimental Medicine there, gives his communication no ephemeral interest. Van Niessen claims to have succeeded in producing syphilis-like lesions in swine, by the inoculation of specific infectious material, and announces a paper on the subject for the next congress.

DR. KEUHNAN of Breslau claims that proteus is intensely pathogenic in human mucous membranes. Its etiological rôle in ulcerative enteritis and cystitis has long been suspected, and Dr. Kühnan thinks that he can trace the deeply destructive processes that sometimes occur in oral and pharyngeal mucous membranes in the tonsils and base of the tongue to the same cause. He exhibited pictures of two such cases in which the protens had been found. For the proper study of protens a new technic will be needed, as its transplantation to the various media now used in bacteriology gives rise to morphologic changes which led to the description of as many varieties as there are media.

The next session of the German Congress is to be held at Carlsbad in Bohemia. It has been the custom so far to hold the sessions every second year at Wiesbaden, and then on alternate years at Berlin, Leipsig, Munich, and Vienna. The change comes at the suggestion of Professor Von Jaksch, and was voted unanimously. It is considered to be an expression of protest on the part of German medical men against the progress of "Slavization" in Bohemia, and the favoring of any such process by the Government.

Besides Van Niessen's paper on Syphilis, Professor Nothnagel of Vienna announces a communication "On Local Blood-Letting and So-called Local Counterirritation."

THE GERMAN SOCIETY OF SURGERY.

The Twenty-Seventh Congress, Held at Berlin, April 13, 14, 15, 16, 1898.

[Specially Reported for THE MEDICAL NEWS.]

THE Congress was conducted in a most practical and scientific manner and was a complete success. Important subjects were taken up in succession and after two or three twenty-minute papers were read on each, they were discussed by the house generally.

The first subject introduced was

THE LATEST METHODS FOR THE IMPROVEMENT OF ASEPSIS.

PROFESSOR MIKULICZ of Breslau, who first introduced gloves in operations, opened the scientific work of the Congress by describing and exhibiting a new aid toward absolute asepsis. It is a mouth and nose mask made of gauze. It is simple and light and is held in place by wires extending over the ears after the fashion of spectacles. He made a series of experiments with and without the mask, talking, coughing, and sneezing before agar plates; without the mask the plates always showed innumerable colonies, under the protection of the mask the number was reduced to one or two, and sometimes even no colonies. He considers that like the gloves this or a similar mask will soon be indispensable to the surgeon. He never operates without it.

He also announced that the gloves he now uses are no longer made simply of cloth, but of an impermeable substance, or if of cloth they are first rendered impermeable.

DR. PERTHES of Leipsic advocated gloves made of silk and rubber. They were not too thick, and so did not interfere with the sense of touch as did rubber gloves, and at the same time they had the advantage of impermeability. The only objection to them was that they are somewhat costly.

PROFESSOR DOEDERLEIN of Tübingen was satisfied with the old methods and did not believe in changing them. He still thought he could sterilize his hands sufficiently for practical purposes. Yet he saw a distinct place in surgery for the gloves. In emergency cases such as sudden hemorrhage when time for sterilization of the hands was limited he thought the gloves might be extremely useful.

In the general discussion on gloves the majority seemed to advocate them, and all acknowledged their usefulness. When one member went so far as to thank Professor Mikulicz in the name of surgery for the discovery, from every part of the hall came cries of bravo! bravo!

PROFESSOR WOELFLER of Prague, who introduced rubber gloves to the profession, said that he was no longer wearing them, but had found a better substitute in buckskin gloves which were prepared by soaking several days in xylol.

The Congress then took up the subject of

BACTERIA AND FRESH WOUNDS.

PROFESSOR FREDERICK of Leipsic showed by experiments on animals that the infection of fresh wounds remains superficial for at least 6 to 8 hours, but not much longer. He concluded therefore that the proper treat-

ment of a wound was, if the wound came to the surgeon within the limited time to freshen the edges and stitch the wound. But if the wound was older than this it should be treated after the open method.

DR. NOETZEL of Königsberg repeated Schimmelbusch's experiments and confirmed his results, showing that bacteria were absorbed very rapidly from fresh wounds. Ten minutes after infecting a wound with anthrax bacilli, they could be found in the body. Still he thought this rapid absorption might be Nature's means of self-protection.

DR. SCHLOFFER of Prague found bacteria in wounds which healed by first intention. He believed from experiments that the secretions of healthy wounds were toxic to bacteria.

The next subject for discussion was

LOCAL ANESTHESIA.

DR. HACKENBRUCK of Wiesbaden advocated one-fourth per-cent. cocain-eucain solution. It should be injected warm and the part should, if possible, be rendered bloodless by an elastic ligature. Schleich's solutions were not successful in his hands.

DR. BRAUN of Leipsic advocated Schleich's mixture with the omission of its morphia. He thought the subsequent edema so frequently seen to be due to the action of morphia on the blood-vessels of the part. There still remained much room for improvement in local anesthesia.

DR. RUBENSTEIN of Berlin said that he found Schleich's without additions or omissions the best solution. He has done with it a number of operations on joints, especially the knee. He has also done bone operations where the tuberculous process was not very extensive, and claimed that infiltration of the periosteum with the anesthetic was sufficient since the bone itself was not sensitive.

In the general discussion it seemed to be pretty well agreed that Schleich's local-anesthesia solutions were the best and most useful combinations yet suggested. They did not wish the morphia omitted, and eucain had but the one advocate.

The morning of the second day was devoted to

SURGERY OF THE STOMACH AND INTESTINES.

PROFESSOR KROENLEIN of Zürich detailed the now famous case of total extirpation of the stomach done by his assistant Dr. Schlatter. The speaker insisted that this case was so far unique, though the American journals did say the contrary. He announced that the patient was in excellent health, and had gained thirteen pounds since the operation. She can take any ordinary nourishment and her digestion seems not at all impaired. In sixteen resections of the stomach which he has done during the last ten years for malignant disease only two died as a result of the operation, though six died later from recurrence.

DR. SCHUCHARDT of Stettin described a case of almost total extirpation of the stomach in which he was surprised to find no disturbance of digestion. The patient lived for over two years, and then died of pleurisy. The post-mortem revealed complete regeneration of the stomach. The speaker exhibited the specimen of the regenerated stomach which looked like a normal organ.

DR. LOEBKER of Bochum stated that he had seen cases where operators thought they had removed the entire stomach, but on post-mortem within a few days they found most of it remaining. There were cases of hour-glass contraction of the stomach and under such circumstances one might easily be deceived.

PROFESSOR KRONLEIN insisted that in the Zürick case there was no such error made, that the esophagus was actually attached to the duodenum.

PROFESSOR MIKULICZ said that in operating on malignant neoplasms of the stomach the surgeon must not be afraid of doing a radical operation. He must remove everything that seems to be involved. Consequently before attempting such an operation he should know his technic thoroughly, and be sufficiently grounded in anatomy and pathology to know where to look for involvement. His method of completing the operation in a case of resection is to close the end of the duodenum by stitches, completely stitch the hole in the stomach and making a new opening in both, join them by a button.

DR. DOYEN of Paris exhibited something new in the technic of stomach and intestinal operations. In order to do a bloodless operation (it also renders the operation more aseptic) he uses a clamp by means of which he crushes the walls of the intestine or stomach before cutting into it. The clamp is the large instrument which is used by gynecologists for clamping the broad ligament.

PROFESSOR HAHN read his own statistics of 141 gastro-enterostomies and 28 of resection with gastro-enterostomy. Of these 28, 10 died as a result of the operation. In 4 cases in which the patients were past 60 years of age all died, while of 12 cases between the ages of 40 and 50 only 2 died. This led him to believe that in old people the prognosis was extremely unfavorable. He recommended in case the patient was extremely feeble the doing of the operation in two stages, first perform a gastro-enterostomy and later do the resection.

DR. STENDEL of Heidelberg gave the statistics of the Heidelberg clinic. He said that in cases of non-malignant stricture of the pylorus they did not dilate, but did gastro-enterostomy. This operation was also done if a cancer of the pylorus, or immediate region, was found to be inoperable. They noticed in these cases such a marked improvement after the operation, and oftentimes such a long life, in one case over three years, that they were led to believe that the simple removal of the irritation not only brought the growth of the neoplasm to a standstill for a time, but that possibly even a retrograde change for the better took place in the tumor.

In the discussion on

THE MURPHY BUTTON

Frank's coupler was brought up and described, and samples of it passed around the room.

DR. KOENIG, JR., of Berlin advocated the coupler for side-to-side interstinal anastomosis, but from one fatal ex-

perience thought that it was absorbed too quickly by the stomach juices for a gastro-enterostomy.

PROFESSOR WOELFLER of Prague exhibited a modification of the Frank coupler which he had made. It consisted of a tube with two rings on it which could be drawn slightly apart, and on pressure sprung fast together. The whole was made of the same absorbable material as the coupler.

PROFESSOR JORDAN of Heidelberg and DR. KUMMEL making use of the statistics from Czerny's Clinic of sixty-three successful cases (in none of which the instrument had failed to pass in the natural way) advocated strongly the Murphy button.

The afternoon session was devoted to

THE TREATMENT OF POTT'S DISEASE.

Calot's procedure of applying pressure while extension is made was the one that met with universal approval.

PROFESSOR LORENZ of Vienna described a screw by means of which the pressure could be regulated. DR. WULLSTEIN of Halle exhibited a complicated device for keeping up the pressure, and DR. VULPIUS of Heidelberg a table on which the plaster-of-Paris jacket could be more easily and better applied.

PROFESSOR HOFFA of Würzburg mentioned the following contraindications: (1) Very long standing deformity. (2) If many vertebræ take part in the kyphosis. (3) Purulent collections at the seat of the disease. He said that the most suitable cases were those in which the prominence was just appearing. Paralysis was not a contraindication; he had seen some paralyses of the legs cured where the operation was done early after its appearance. A simple method of finding out in advanced cases whether the procedure should be tried or not was to apply extension without the patient being anesthetized; if the kyphosis partly disappears the procedure may be attempted; if the prominence remains the same without giving the patient too much pain, the operation would probably be useless.

The morning of the third day began with a discussion of

EMPYEMA.

PROFESSOR JORDAN of Heidelberg advocated for old cavities a combination of the Schede and Delorme operations. He resects the entire chest-wall that covers the cavity, and with his fingers loosens the contracted and shrunken pleura. Twenty-three cases so operated on gave 9 complete recoveries, 6 have only a small fistula remaining, 4 died, and the others are still under treatment. Of four tubercular cases 3 died. The extent of the resection depends on the size of the cavity. He exhibited a case of a boy eleven years of age, on whom the operation had been done five years before. Five ribs had been resected, and had now been completely regenerated.

DR. PERTHES of Leipsic demonstrated a water-vacuum-pump which he had used successfully in a number of cases of empyema and pneumothorax.

In the general discussion cases were presented where the most extensive resections had been done, and DR. GERULANOS of Greifswald exhibited the specimens (unfortunately the patient died twenty-two hours after the operation) of an entire half of the thorax which he had resected in a child for sarcoma.

A most interesting discussion followed upon

THE SURGERY OF THE LIVER AND BILE-DUCTS.

DR. PETERSON of Heidelberg presented the Heidelberg statistics of 162 operations on the gall-ducts and bladder, with six deaths. In cases where they were obliged to resect portions of the liver they had controlled the hemorrhage by hot air.

PROFESSOR POPPERT of Giessen spoke of fifty-seven cholocystotomies in which the fistula was managed by inserting a rubber tube into the gall-bladder, holding it in place by a Nelaton stitch between the bladder-wall and the tube, and then bringing the tube out through the abdominal opening. The tube is stitched in the same way to the abdominal-wall, and the wound closed up to the tube. He claimed never to have had any leakage of bile.

PROFESSOR HEIDENHAIN of Worms detailed a case and showed specimen where he had resected the gall-bladder for carcinoma. The tumor was only the size of a cherry stone, and the surrounding structures at the time of operation seemed healthy, yet the patient died of carcinoma of the liver in a short time. He concluded that the operator could never be certain that he had eradicated the disease.

DR. HOLLAENDER of Berlin described a case operated upon by him a few weeks ago where he resected a large portion of the liver and controlled the hemorrhage by hot air. The patient is in excellent condition. He demonstrated his apparatus for making the hot air, and recommended it for control of hemorrhage from other organs.

In the general discussion Holländer's method of hemostasis seemed to meet with general favor.

There was a brief discussion upon

THE RESULTS OF SERUM-THERAPY IN DIPHTHERIA.

PROFESSOR KROENLEIN of Zürich presented his side of the question so thoroughly and strikingly, and the assembly seemed to agree so entirely with him, that the President called for discussion in vain. Professor Krönlein gave the statistics of diphtheria in Zürick clinic and in the Canton Zürick since 1880. Since the serum was introduced in 1894 every case of diphtheria in the hospital has been treated with it. Between 1880 and 1894 they treated in the clinic 1336 cases, with a mortality of thirty-nine per cent.; between 1894 and 1898,437 cases, with a mortality of twelve per cent. In the Canton Zürick in the same years the average mortality was sixteen per cent. before the introduction of serum; eight per cent. since 1894. He believed they found in the majority of cases an improvement as soon as the treatment was begun. They noticed a fall of temperature, a loosening of the membrane, a decrease in the glandular swellings, and no further extension of the process.

On the fourth day came a conglomeration of addresses that were included under none of the general subjects of the congress, and on account of their number they were rushed through rapidly.

PROFESSOR BRUNS of Tübingen exhibited parts of

cadavers on which he had tried the effect of what he called

INHUMAN BULLETS.

During the late Indian war the English troops found that the bullets created much more damage when the points had been filed off them, and so the soldiers filed them down on stones. The effect was, as he showed, to splinter the bones in all directions, and when they struck only soft tissues to tear these beyond all conception.

The speaker begged that at the coming St. Petersburg convention the German members would take action that in case of war in Europe such bullets would be forbidden; that they wished to disable the enemy but not mutilate him. The speaker was loudly applauded, and the daily papers quoted his address in full.

DR. KUMMEL of Hamburg spoke on

THE TREATMENT OF LUPUS BY ROENTGEN-RAYS AND CONCENTRATED LIGHT.

He presented some cases partially cured and still under treatment.

DR. DOYEN of Paris stated most favorable results in

HEMICRANIECTOMY.

A number of idiots or microcephalics distinctly improved or cured. In one idiot with Graves' disease the exophthalmos and goiter had disappeared four days after the operation. Epileptics were markedly improved; one case had not had an attack in five, another in six months. In two cases of Jacksonian epilepsy, having found no lesion, he cut out the epileptogenic center; the first was successful, the second is still under treatment. He had removed a large subcortical tubercle with cure, and opened several deep-lying abscesses, which would not have been discovered but for the extensive resection. A case of occipital meningitis, moribund at the time of operation, was completely cured. He had lately attempted to reach some tumors at the base of the brain, but the cases had been particularly unsuitable. He exhibited many new instruments.

PROFESSOR BARTH of Dantzic advised in empyema of the frontal sinus, trephining, enlargement of the passage into the nose, and immediate closure of the trephine wound.

DR. GROSSE of Halle presented the Halle Clinic statistics of 24 cancers of the face, with 16 complete recoveries. He exhibited several cases, one of a woman on whom an extensive radical operation had been done five years ago. They had removed the superior maxillary and malar bones, the eye, the zygoma, had chiseled away some bones of the orbit, and a portion of the temporal bone, as deep as the tympanum. The results were excellent.

PROFESSOR PARTSCH of Breslau exhibited a patient in whom he had made a temporary resection of the alveolar process, turning the flap back on the gum, and afterward replacing it.

PROFESSOR GARRÉ spoke of resection of the esophagus in its upper part, and DR. REHN of Frankfort-on-the-Main of resection in the thoracic portion. In one case the latter had successfully gone in from behind, though the patient died a short time after.

DR. KUTTNER of Tübingen reported two cases of syphilitic struma which had been diagnosed malignant and operated on. Microscopical examination of the tumors and later symptoms made the diagnosis certain.

DR. SPRENGEL of Braunschweig exhibited the specimens of two cases in which coxitis had been diagnosed from the symptoms and skiagraphs. Post-mortem proved them to have been traumatic separation of the epiphyseal head.

DR. HOFMEISTER of Tübingen presented a number of different Röntgen-ray photographs of a single normal pelvis, in which by moving the patient, or the apparatus, or both, during the procedure, almost every variety of deformity had been produced.

DR. WILMS of Leipsic described an apparatus by means of which the application of heat to inflamed joints could be regulated; DR. KRAUSE of Altona a hot-air apparatus for the same purpose.

PROFESSOR DUHRSSEN of Berlin advocated the employment of steam to control hemorrhage. He said it was particularly efficient in cases of excessive menstruation. He demonstrated his apparatus.

At the close of the Congress a vote of thanks was extended to the President, Professor Trendelenburg, for the efficient and successful manner in which the proceedings had been conducted. After balloting, it was announced that Professor Hahn of Berlin was elected President for the ensuing year.

THERAPEUTIC HINTS.

To Control Vomiting Caused by Cancer of the Stomach.—

℞	Picrotoxin Morphin hydrochlorat. }	aa . .	gr. i
	Atrop. sulphat.		gr. ⅙
	Aq. laurocerasi		ʒ vi.

M. Sig. Five to eight drops before meals.

For Rhinitis.—

℞	Phenacetin Pulv. amyli }	aa	ʒ i
	Pulv. acaciæ		ʒ ii.

M. Sig. For insufflation several times a day.

For Anal Pruritus with Hemorrhoids.—

℞	Ext. hamamelidis fl. . . .		℥ i
	Ext. ergotæ fl. Ext. hydrastis fl. Tinct. benzoini comp. }	aa . .	℥ ii
	Ac. carbolici		*m.* v
	Ol. olivæ		℥ i.

M. Sig. For rectal injection, one or two ounces at a time, to be well shaken.

Ointment for Varicose Ulcer.—

℞	Ac. carbolici	ʒ ss
	Ac. borici	ʒ iiss
	Camphoræ	ʒ ii
	Ichthyol	ʒ v
	Ol. amygdalæ dulc. . . .	ʒ iiss
	Ung. zinci oxidi	℥ iiiss.

M. Sig. For external use.